Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	105815	dendrimer or pamam or peg	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/08/08 14:44
S2	5010	sirna or rnai or dsrna	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/08/08 14:45
S3	8138	double adj stranded adj rna	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/08/08 14:45
S4	1231	S1 and S2	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/08/08 14:45
S5	1231	S4 and S1	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/08/08 14:45
S6	63	delivery same oligonucleotide same dendrimer	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/08/08 15:13
S7	574	delivery same dsrna or (double stranded rna) same dendrimer	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/08/08 14:46
S8	81	agrawal and dendrimer	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/08/08 15:13
S9	2198	agrawal.in.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/08/08 15:13
S10	4	S9 and dendrimer	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/08/08 15:18
S11	414	ribozymes and dendrimer	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/08/08 15:19
S12	15	delivery same ribozyme same dendrimer	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2005/08/08 15:19

FILE 'EMBASE, BIOSIS, MEDLINE, SCISEARCH' ENTERED AT 09:09:21 ON 09 AUG 2005

L1	34391	S	SIRNA OR DSRNA OR RNAI
L2	258359	S	OLIGONUCLEOTIDE OR ANTISENSE
L3	41920	S	DENDRIMER OR PAMAM OR (CARBOXYLIC ACID TERMINATED) OR DIAMINO
L4	47891	S	PEG
L5	207	S	L3 AND L4
L6	89604	S	L3 OR L4
L7	82	S	L1 AND L6
L8	1009	S	L2 AND L6
L9	0	S	L7 AND @PY<2002
L10	31	S	L7 AND PY<2002
L11	507	S	L8 AND PY<2002
L12	400	S	L11 AND PY<2001
L13	71	S	L2 AND PAMAM
L14	39	S	L13 AND PY<2002
L15	21	DUP REM	L10 (10 DUPLICATES REMOVED)
L16	41	DUP REM	L13 (30 DUPLICATES REMOVED)

=> d iall l15 1-21

L15 ANSWER 1 OF 21 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 2001:508479 BIOSIS
DOCUMENT NUMBER: PREV200100508479
TITLE: Eliciting antigen-specific egg-yolk IgY with naked DNA.
AUTHOR(S): Romito, Marco [Reprint author]; Viljoen, Gerrit J.; Du Plessis, Dion H.
CORPORATE SOURCE: Biotechnology Division, Onderstepoort Veterinary Institute (OVI), Onderstepoort, 0110, South Africa
marco@moon.ovi.ac.za
SOURCE: Biotechniques, (September, 2001) Vol. 31, No. 3, pp. 670-675. print.
CODEN: BTNQDO. ISSN: 0736-6205.
DOCUMENT TYPE: Article
LANGUAGE: English
ENTRY DATE: Entered STN: 31 Oct 2001
Last Updated on STN: 23 Feb 2002

ABSTRACT:Immunization with naked DNA was used to elicit chicken egg yolk antibodies (IgY). Layer hens were inoculated with plasmid DNA encoding the enhanced green fluorescent protein, the fusion protein of Newcastle disease virus, and VP2 of African horse sickness virus. IgY was extracted from egg yolks by polyethylene glycol precipitation. Specific antibodies were present in the yolks of eggs from hens immunized with each of the three different plasmids. This approach to raising polyclonal antibodies obviates the need to produce and purify large quantities of proteins for immunization and can potentially yield large amounts of diagnostically or therapeutically useful reagents.

CONCEPT CODE: Biochemistry studies - Nucleic acids, purines and pyrimidines 10062
Biochemistry studies - Proteins, peptides and amino acids 10064
Development and Embryology - General and descriptive 25502
Virology - Animal host viruses 33506

INDEX TERMS: Major Concepts
Methods and Techniques

INDEX TERMS: Parts, Structures, & Systems of Organisms
egg yolk: embryonic structure, yolk

INDEX TERMS: Chemicals & Biochemicals
African horse sickness virus VP2: serotype 3; Newcastle disease virus fusion protein; **PEG** 6000 polyethylene glycol: Merck; antigen-specific egg-yolk immunoglobulin Y: elicitation; diagnostically useful reagents; green fluorescent protein; naked DNA: Promega; plasmid DNA: Promega; polyclonal antibodies; therapeutically useful reagents

INDEX TERMS: Methods & Equipment
large quantity protein production: Molecular Biology Techniques and Chemical Characterization, production method; large quantity protein purification: Extraction, Isolation, Purification and Separation Techniques, purification method; naked DNA immunization: Immunologic Techniques, immunization method; plasmid DNA inoculation: Immunologic Techniques, immunization method; polyclonal antibody raising: Immunologic Techniques, immunization method; polyethylene glycol precipitation: Extraction, Isolation, Purification and Separation Techniques, extraction method

ORGANISM: Classifier
Galliformes 85536

Super Taxa
Aves; Vertebrata; Chordata; Animalia
Organism Name
Amberlink hybrid chicken: Golden Jay, female
Leghorn layer chicken: Avimune, Centurion, female
Taxa Notes
Animals, Birds, Chordates, Nonhuman Vertebrates, Vertebrates

ORGANISM: Classifier
Paramyxoviridae 03503
Super Taxa
Negative Sense ssRNA Viruses; Viruses; Microorganisms
Organism Name
Newcastle disease virus: strain-Onderstepoort
Taxa Notes
Microorganisms, Negative Sense Single-Stranded RNA Viruses, Viruses

ORGANISM: Classifier
Reoviridae 03402
Super Taxa
dsRNA Viruses; Viruses; Microorganisms
Organism Name
African horse sickness virus
Taxa Notes
Double-Stranded RNA Viruses, Microorganisms, Viruses

L15 ANSWER 2 OF 21 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 1999:210075 BIOSIS
DOCUMENT NUMBER: PREV199900210075
TITLE: Comparative detection of enteric viruses in wastewaters, sediments and oysters by reverse transcription-PCR and cell culture.
AUTHOR(S): Green, David H.; Lewis, Gillian D. [Reprint author]
CORPORATE SOURCE: Molecular Genetics and Microbiology, School of Biological Sciences, University of Auckland, PB 92019, Auckland, New Zealand
SOURCE: Water Research, (April, 1999) Vol. 33, No. 5, pp. 1195-1200. print.
CODEN: WATRAG. ISSN: 0043-1354.
DOCUMENT TYPE: Article
LANGUAGE: English
ENTRY DATE: Entered STN: 26 May 1999
Last Updated on STN: 26 May 1999

ABSTRACT:The work presented here examines the utility of reverse transcription-PCR (RT-PCR) assays for monitoring enteric viruses contaminating wastewaters, sediments and shellfish. Sampling occurred over a 12 month period from and around a large cosmopolitan sewage treatment facility in Auckland, New Zealand. Viruses were concentrated using primary polyethylene glycol 6000 (***PEG*** 6000) precipitation and recently developed secondary concentration and purification techniques as preliminary steps to analysis by plaque assay or RT-PCR for enteroviruses, rotaviruses and hepatitis A virus (HAV). Enteroviruses were isolated by plaque assay from each of the different sample types at various points during the year. All three groups of viruses were detected by the PCR in different sample types and at various time points. The results demonstrated that RT-PCR was most useful when examining samples for viruses routinely difficult to identify, namely rotaviruses and HAV.

CONCEPT CODE: Public health - Sewage disposal and sanitary measures 37014
Ecology: environmental biology - General and methods 07502
Invertebrata: general and systematic - Mollusca 63526
Virology - General and methods 33502

INDEX TERMS: Major Concepts
Marine Ecology (Ecology, Environmental Sciences); Methods and Techniques; Waste Management (Sanitation)
INDEX TERMS: Methods & Equipment
plaque assay: analytical method; RT-PCR [reverse transcriptase-polymerase chain reaction]: detection method, polymerase chain reaction
GEOGRAPHICAL TERMS: Auckland (New Zealand, Australasian region)
ORGANISM: Classifier
Pelecypoda 61500
Super Taxa
Mollusca; Invertebrata; Animalia
Organism Name
oyster
Taxa Notes
Animals, Invertebrates, Mollusks
ORGANISM: Classifier
Picornaviridae 03603
Super Taxa
Positive Sense ssRNA Viruses; Viruses; Microorganisms
Organism Name
enterovirus
hepatitis A virus
Taxa Notes
Microorganisms, Positive Sense Single-Stranded RNA Viruses, Viruses
ORGANISM: Classifier
Reoviridae 03402
Super Taxa
dsRNA Viruses; Viruses; Microorganisms
Organism Name
rotavirus
Taxa Notes
Double-Stranded RNA Viruses, Microorganisms, Viruses

L15 ANSWER 3 OF 21 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 1997:456152 BIOSIS
DOCUMENT NUMBER: PREV199799755355
TITLE: Optimisation of the **PEG** reconcentration procedure for virus detection by cell culture or genomic amplification.
AUTHOR(S): Vilagines, P. [Reprint author]; Suarez, A.; Sarrette, B. [Reprint author]; Vilagines, R. [Reprint author]
CORPORATE SOURCE: Cent. Rech. Controle Eaux Paris, ave. Paul Vaillant Couturier, 75014 Paris, France
SOURCE: Water Science and Technology, (1997) Vol. 35, No. 11-12, pp. 455-459.
CODEN: WSTED4. ISSN: 0273-1223.
DOCUMENT TYPE: Article
LANGUAGE: English
ENTRY DATE: Entered STN: 27 Oct 1997
Last Updated on STN: 27 Oct 1997
ABSTRACT:A double reconcentration procedure was developed for virus detection in tapwater concentrates obtained by conventional adsorption-elution techniques suitable for cell inoculation as well as for genomic amplification. Using 7.5% ***PEG*** 6000 and 2.5% NaCl, a 15 min contact time under agitation at room temperature followed by centrifugation (first step: 3,500 times g, 90min, 4 degree C; second step 10,000 times g, 20min, 4 degree C) were the conditions to obtain overall average virus recovery efficiencies of 71% for poliovirus from 900ml cluates and 88, 83 and 75% for poliovirus, coxsackie B2 and rotavirus respectively (400ml eluates). Direct extraction of viral RNA from the first ***PEG*** pellet with Trizol was efficient for RT-PCR assays without any

further treatment Primer pairs were selected to amplify rotavirus group A and poliovirus in seeded tapwater concentrated by adsorption elution through glass wool. A positive signal was obtained for theoretic virus concentration of 1 PFU. Analysis of field samples (1001) by cell culture and genomic amplification resulted in a higher sensitivity with the latter.

CONCEPT CODE: Biochemistry methods - Nucleic acids, purines and pyrimidines 10052
Genetics of bacteria and viruses 31500
Microbiological apparatus, methods and media 32000
Virology - Animal host viruses 33506
Public health - Air, water and soil pollution 37015
Public health: microbiology - Public health microbiology 37400

INDEX TERMS: Major Concepts
Biochemistry and Molecular Biophysics; Genetics; Methods and Techniques; Microbiology; Pollution Assessment Control and Management

INDEX TERMS: Miscellaneous Descriptors
CELL CULTURE; COXSACKIE B2 VIRUS; DETECTION METHOD; DRINKING WATER; EXTRACTION METHOD; GENOMIC AMPLIFICATION; METHODOLOGY; PATHOGEN; **PEG** HYDROEXTRACTION; POLLUTION; REVERSE TRANSCRIPTION POLYMERASE CHAIN REACTION; TAPWATER; VIRUS DETECTION

ORGANISM: Classifier
Picornaviridae 03603
Super Taxa
Positive Sense ssRNA Viruses; Viruses; Microorganisms
Organism Name
poliovirus
Taxa Notes
Microorganisms, Positive Sense Single-Stranded RNA Viruses, Viruses

ORGANISM: Classifier
Reoviridae 03402
Super Taxa
dsRNA Viruses; Viruses; Microorganisms
Organism Name
rotavirus
Reoviridae
Taxa Notes
Double-Stranded RNA Viruses, Microorganisms, Viruses

L15 ANSWER 4 OF 21 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 1997:305124 BIOSIS
DOCUMENT NUMBER: PREV199799612927
TITLE: Development of double antibody sandwich competitive ELISA for measuring antibody against infectious bursal disease.
AUTHOR(S): Patnayak, D. P. [Reprint author]; Kalra, S. K. [Reprint author]; Kumar, Arvind [Reprint author]; Belwal, L. M.
CORPORATE SOURCE: Dep. Vet. Microbiol., CCS Haryana Agric. Univ., Hisar, India
SOURCE: Indian Journal of Poultry Science, (1997) Vol. 32, No. 1, pp. 53-58.
CODEN: IJPOAW. ISSN: 0019-5529.
DOCUMENT TYPE: Article
LANGUAGE: English
ENTRY DATE: Entered STN: 26 Jul 1997
Last Updated on STN: 26 Jul 1997

ABSTRACT:A double antibody sandwich competitive ELISA for measuring anti- IBD antibody level in chickens was developed. Coating and tracing sera were raised in rabbits and guinea pigs, respectively using Georgia strain of IBD virus grown on chicken embryo fibroblast cell culture and purified as band on caesium

chloride-sucrose density gradient. Optimum dilutions of coating and tracing sera standardised were 1:1,000 and 1:800, respectively. The virus precipitated by **PEG**-6000 was used as ELISA antigen and the virus concentration equivalent to log10-7.3 TCID-50 was found to be optimal in the test.

CONCEPT CODE: Biochemistry studies - Proteins, peptides and amino acids 10064
Biochemistry studies - Carbohydrates 10068
Immunology - Bacterial, viral and fungal 34504
Medical and clinical microbiology - Virology 36006
Veterinary science - Pathology 38004
Veterinary science - Microbiology 38006

INDEX TERMS: Major Concepts
Immune System (Chemical Coordination and Homeostasis); Infection; Veterinary Medicine (Medical Sciences)

INDEX TERMS: Miscellaneous Descriptors
ANTI-INFECTIOUS BURSAL DISEASE ANTIBODIES; DOUBLE ANTIBODY SANDWICH COMPETITIVE ELISA; HOST; IMMUNOLOGIC METHOD; INFECTION; INFECTIOUS BURSAL DISEASE; MEASUREMENT; MEASUREMENT METHOD; METHODOLOGY; PATHOGEN; VETERINARY MEDICINE; VIRAL DISEASE

ORGANISM: Classifier
Birnaviridae 03403
Super Taxa
dsRNA Viruses; Viruses; Microorganisms
Organism Name
infectious bursal disease virus
Taxa Notes
Double-Stranded RNA Viruses, Microorganisms, Viruses

ORGANISM: Classifier
Galliformes 85536
Super Taxa
Aves; Vertebrata; Chordata; Animalia
Organism Name
chicken
Taxa Notes
Animals, Birds, Chordates, Nonhuman Vertebrates, Vertebrates

L15 ANSWER 5 OF 21 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 1997:365474 BIOSIS
DOCUMENT NUMBER: PREV199799657407
TITLE: Seminested RT-PCR systems for small round structured viruses and detection of enteric viruses in seafood.
AUTHOR(S): Hafliger, D.; Gilgen, M.; Luthy, J.; Hubner, P. [Reprint author]
CORPORATE SOURCE: Lab. Food Chemistry, Dep. Chemistry Biochemistry, Univ. Berne, Freiestrasse 3, 3012 Berne, Switzerland
SOURCE: International Journal of Food Microbiology, (1997) Vol. 37, No. 1, pp. 27-36.
CODEN: IJFMDD. ISSN: 0168-1605.
DOCUMENT TYPE: Article
LANGUAGE: English
ENTRY DATE: Entered STN: 25 Aug 1997
Last Updated on STN: 25 Aug 1997

ABSTRACT:Highly sensitive seminested RT-PCR systems for the specific detection of genotype I and II small round structured viruses (SRSVs) were developed based on the nucleic acid information deposited in the databanks. SRSVs could be detected in 10-7-fold dilutions of three different stool samples. In addition, a rapid and simple purification protocol for enteric viruses from seafood tissues was elaborated using poliovirus (PV) as model. The virus isolation and viral RNA purification include the following steps: elution of the viruses from the seafood tissue with glycine buffer, their concentration by

PEG -precipitation, lysis of viral particles with guanidine hydrochloride and viral RNA isolation using a silica based membrane. The detection limit was 3 to 30 TCID-50 of poliovirus in 1.25 g of seeded seafood tissues without marked food matrix differences, whereas SRSV viruses were 10- and 100-fold better detected in mussels than in shrimps and oysters, respectively. The newly developed purification method, which was shown to remove potential RT-PCR inhibitors present in mussel tissue samples, was applied in a small market survey. 15 mussels, 15 oysters and 12 shrimps were examined for the presence of Hepatitis A virus (HAV), Enterovirus (EV), Rotavirus (RV) and SRSV using specific RT-PCR detection systems. The finding of three oyster samples positive for Rotavirus demonstrated the successful application of our method for the detection of enteric viruses in naturally contaminated seafood samples. The rapid isolation method might be suitable for application in routine testing laboratories and will help to improve public health controls for seafood.

CONCEPT CODE: Comparative biochemistry 10010
Biochemistry methods - Nucleic acids, purines and pyrimidines 10052
Biochemistry studies - Nucleic acids, purines and pyrimidines 10062
Biophysics - Molecular properties and macromolecules 10506
Food technology - Fish and other marine and freshwater products 13522
Genetics of bacteria and viruses 31500
Virology - Animal host viruses 33506
Medical and clinical microbiology - Virology 36006
Public health - Public health laboratory methods 37006
Public health: microbiology - Public health microbiology 37400
Food microbiology - Food and beverage spoilage and contamination 39002

INDEX TERMS: Major Concepts
Biochemistry and Molecular Biophysics; Foods; Genetics; Infection; Microbiology; Public Health (Allied Medical Sciences)

INDEX TERMS: Chemicals & Biochemicals
GUANIDINE HYDROCHLORIDE

INDEX TERMS: Miscellaneous Descriptors
ANALYTICAL METHOD; FOODS; GUANIDINE HYDROCHLORIDE; METHODOLOGY; MOLECULAR GENETICS; PUBLIC HEALTH; RNA; SEAFOOD; SEMINESTED REVERSE TRANSCRIPTION POLYMERASE CHAIN REACTION SYSTEMS; SEMINESTED RT-PCR SYSTEMS; VIRAL SEAFOOD CONTAMINATION

ORGANISM: Classifier
Malacostraca 75112
Super Taxa
Crustacea; Arthropoda; Invertebrata; Animalia
Organism Name
shrimp
Taxa Notes
Animals, Arthropods, Crustaceans, Invertebrates

ORGANISM: Classifier
Pelecypoda 61500
Super Taxa
Mollusca; Invertebrata; Animalia
Organism Name
mussels
oysters
Taxa Notes
Animals, Invertebrates, Mollusks

ORGANISM: Classifier

Picornaviridae 03603
Super Taxa
Positive Sense ssRNA Viruses; Viruses; Microorganisms
Organism Name
enterovirus
hepatitis A virus
poliovirus
Taxa Notes
Microorganisms, Positive Sense Single-Stranded RNA Viruses, Viruses

ORGANISM: Classifier
Reoviridae 03402
Super Taxa
dsRNA Viruses; Viruses; Microorganisms
Organism Name
rotavirus
Reoviridae
Taxa Notes
Double-Stranded RNA Viruses, Microorganisms, Viruses

REGISTRY NUMBER: 50-01-1 (GUANIDINE HYDROCHLORIDE)

L15 ANSWER 6 OF 21 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 1999:302542 BIOSIS
DOCUMENT NUMBER: PREV199900302542
TITLE: Structural proteins of field isolates of infectious bursal disease virus.
AUTHOR(S): Vengadabady, N. [Reprint author]; Sulochana, S.
CORPORATE SOURCE: Vaccine Research Center, Center for Animal Health Studies, Madras-51, India
SOURCE: Journal of Veterinary and Animal Sciences, (Dec., 1996) Vol. 27, No. 2, pp. 106-110. print.
ISSN: 0971-0701.
DOCUMENT TYPE: Article
LANGUAGE: English
ENTRY DATE: Entered STN: 12 Aug 1999
Last Updated on STN: 12 Aug 1999

ABSTRACT:Four field isolates, two each from vaccinated and unvaccinated flocks and a vaccine strain of infectious bursal disease virus were concentrated and purified by initial **PGE** precipitation and subsequent differential centrifugation. The structural proteins of these isolates were resolved by SDS-PAGE using bovine serum albumin and chymotrypsin as molecular weight markers. All the four field isolates resolved nine polypeptides ranging between 32 kD to 86 kDm while the vaccine strain had 11 protein components the molecular of which ranged between 33 kD and 93 kD. The field isolates lacked the 93 kD, 80 kD and 43 kD proteins of the vaccine strain. The protein with mol. wt. of 52 kD was absent in the vaccine strain. A difference in the mol. wts. of proteins P6 and P12 of the field isolates and the vaccine strain was also detected.

CONCEPT CODE: Medical and clinical microbiology - General and methods 36001
Biochemistry studies - General 10060
Immunology - General and methods 34502

INDEX TERMS: Major Concepts
Biochemistry and Molecular Biophysics; Infection

INDEX TERMS: Diseases
Gumboro disease: viral disease

INDEX TERMS: Chemicals & Biochemicals
infectious bursal disease virus vaccine: immunologic-drug; viral proteins

INDEX TERMS: Methods & Equipment
differential centrifugation: purification method; polyacrylamide gel electrophoresis: analytical method

ORGANISM: Classifier
Birnaviridae 03403
Super Taxa
dsRNA Viruses; Viruses; Microorganisms
Organism Name
infectious bursal disease virus: pathogen
Taxa Notes
Double-Stranded RNA Viruses, Microorganisms, Viruses
ORGANISM: Classifier
Galliformes 85536
Super Taxa
Aves; Vertebrata; Chordata; Animalia
Organism Name
chicken: chick, host
Taxa Notes
Animals, Birds, Chordates, Nonhuman Vertebrates, Vertebrates
REGISTRY NUMBER: 9003-05-8 (POLYACRYLAMIDE)

L15 ANSWER 7 OF 21 EMBASE
on STN DUPLICATE 1
ACCESSION NUMBER: 95004297 EMBASE
DOCUMENT NUMBER: 1995004297
TITLE: Double-stranded RNA mycoviruses in mycelium of Pleurotus ostreatus.
AUTHOR: Van Der Lende T.R.; Harmsen M.C.; Go S.J.; Wessel J.G.H.
CORPORATE SOURCE: Department of Plant Biology, University of Groningen, Kerklaan 30,9751 NN Haren, Netherlands
SOURCE: FEMS Microbiology Letters, (1995) Vol. 125, No. 1, pp. 51-56.
ISSN: 0378-1097 CODEN: FMLED7
COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 004 Microbiology
LANGUAGE: English
SUMMARY LANGUAGE: English
ENTRY DATE: Entered STN: 950125
Last Updated on STN: 950125
ABSTRACT: Mycelium of Pleurotus ostreatus var. florida with a decreased growth rate contained seven double-stranded RNA segments and isometrical virus particles with diameters of 24 and 30 nm. Mycelium with a normal growth rate lacked **dsRNA**. Protoclones from virus-containing mycelium contained one to seven of these **dsRNA** segments in varying concentrations. The exact correlation between slow growth and the presence of **dsRNA** molecules could not be established. Infection of virus-free protoplasts with ***PEG*** -precipitated virus particles resulted in mycelium that stably maintained the 2.4 kbp **dsRNA**.

CONTROLLED TERM: Medical Descriptors:
*rna virus
*virus infection
article
mycovirus
nonhuman
pleurotus
priority journal
Drug Descriptors:
*double stranded rna: EC, endogenous compound

L15 ANSWER 8 OF 21 EMBASE
on STN DUPLICATE 2
ACCESSION NUMBER: 93313409 EMBASE

DOCUMENT NUMBER: 1993313409
TITLE: Characterisation of isolates and strains of citrus tristeza closterovirus using restriction analysis of the coat protein gene amplified by the polymerase chain reaction.
AUTHOR: Gillings M.; Broadbent P.; Indsto J.; Lee R.
CORPORATE SOURCE: Plant Pathology Branch, Biological/Chemical Research Inst., NSW Agriculture, PMB 10,Rydalmere, NSW 2116, Australia
SOURCE: Journal of Virological Methods, (1993) Vol. 44, No. 2-3, pp. 305-317.
ISSN: 0166-0934 CODEN: JVMEDH
COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 004 Microbiology
005 General Pathology and Pathological Anatomy
029 Clinical Biochemistry
037 Drug Literature Index
LANGUAGE: English
SUMMARY LANGUAGE: English
ENTRY DATE: Entered STN: 931121
Last Updated on STN: 931121

ABSTRACT: Citrus Tristeza Virus (CTV) exists as a large number of distinct strains differing in biological properties and with different distributions in citrus producing countries. Strategies such as eradication or cross protection, aimed at controlling severe variants of the pathogen, require procedures to identify virus strains accurately and reliably. To fill the need for a rapid, reproducible assay, we have investigated the use of restriction analysis of the CTV coat protein gene amplified using the polymerase chain reaction (PCR). The primers 5' ATG GAC GAC GAA ACA AAG 3' and 5' TCA ACG TGT GTT GAA TTT 3' amplified a DNA copy of the CTV coat protein gene (approx. 670 base pairs) when used in a reverse transcriptase PCR assay. Amplifications were carried out using **dsRNA** prepared from field and indicator plants, or from single-stranded RNA prepared from crude **PEG** precipitates of intact virions. All 51 CTV isolates tested produced an amplified product of the same size, regardless of country of origin or biological properties. Digestion of the amplified coat protein genes with the restriction enzymes Hinf1 or Rsa1 revealed sequence variation in the PCR products. Hinf1 provided the best discrimination between strains, defining seven Restriction Fragment Length Polymorphism (RFLP) groups, some of which circumscribed sets of isolates with similar biological properties. Limited analysis of field isolates using this method showed that individual trees could contain mixtures of CTV strains, as assessed by the recovery of several RFLP types from individual reactions. Single aphid transmissions of isolates usually, but not always, generated apparently pure single strains judged by the recovery of single RFLP groups.

CONTROLLED TERM: Medical Descriptors:
*plant virus
*virus characterization
*virus isolation
article
polymerase chain reaction
priority journal
restriction site
virus strain
Drug Descriptors:
oligonucleotide

L15 ANSWER 9 OF 21 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
DUPLICATE 3
ACCESSION NUMBER: 1992:215902 BIOSIS
DOCUMENT NUMBER: PREV199293116127; BA93:116127
TITLE: ENCAPSIDATION OF THE LA FRANCE DISEASE-SPECIFIC

DOUBLE-STRANDED RNAS IN 36-NM ISOMETRIC VIRUSLIKE PARTICLES.

AUTHOR(S): GOODIN M M [Reprint author]; SCHLAGNHAUFER B; ROMAINE C P

CORPORATE SOURCE: DEP PLANT PATHOL, PA STATE UNIV, UNIVERSITY PARK, PA 16802, USA

SOURCE: Phytopathology, (1992) Vol. 82, No. 3, pp. 285-290.
CODEN: PHYTAJ. ISSN: 0031-949X.

DOCUMENT TYPE: Article

FILE SEGMENT: BA

LANGUAGE: ENGLISH

ENTRY DATE: Entered STN: 4 May 1992
Last Updated on STN: 4 May 1992

ABSTRACT:We investigated the relationship between the conserved electrophoretic pattern of nine double-stranded RNAs (**dsRNAs**) and the viruslike particles (VLPs) associated with LaFrance disease of the button mushroom, Agaricus bisporus. Using a purification procedure involving chloroform extraction, **PEG**-NaCl precipitation, differential centrifugation, and equilibrium centrifugation in cesium-sulphate gradient, we have obtained preparations from diseased sporophores that were highly enriched in a 36-nm isometric VLP and contained minor amounts of both a 25-nm isometric VLP and 19- + 50-nm single-stranded RNA baciliform virus. Cesium-sulphate gradient fractions that contained these particles (average buoyant density = 1.25 g/cc) also contained the nine disease-specific **dsRNAs** of 3.8-0.8 kb and three disease-associated polypeptides with molecular weights of 63, 66, and 129 K. Neither the VLPs, **dsRNAs**, nor the polypeptides were present in healthy sporophores analyzed under identical conditions. Our data suggest that the nine **dsRNAs** implicated in the etiology of La France disease constitute the genome of a 36-nm isomertric virus.

CONCEPT CODE:
Biochemistry studies - Nucleic acids, purines and pyrimidines 10062
Biophysics - Molecular properties and macromolecules 10506
Genetics of bacteria and viruses 31500
Virology - Plant host viruses 33508
Horticulture - Vegetables 53008
Phytopathology - Diseases caused by viruses 54510

INDEX TERMS:
Major Concepts
Genetics; Horticulture (Agriculture); Infection; Microbiology

INDEX TERMS:
Miscellaneous Descriptors
AGARICUS-BISPORUS FUNGUS VIRUS BACILLIFORM MICROORGANISM MUSHROOM DIE-BACK ETIOLOGY PATHOGEN IDENTIFICATION AGRICULTURE

ORGANISM:
Classifier
Viruses 03000
Super Taxa
Microorganisms
Taxa Notes
Microorganisms, Viruses

ORGANISM:
Classifier
Basidiomycetes 15300
Super Taxa
Fungi; Plantae
Taxa Notes
Fungi, Microorganisms, Nonvascular Plants, Plants

L15 ANSWER 10 OF 21 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN DUPLICATE 4

ACCESSION NUMBER: 1991:322904 BIOSIS

DOCUMENT NUMBER: PREV199192033419; BA92:33419

TITLE: THE ULTRASTRUCTURE OF HYPHAL ANASTOMOSES BETWEEN VEGETATIVELY COMPATIBLE AND INCOMPATIBLE VIRULENT AND

HYPOVIRULENT STRAINS OF CRYPHONECTRIA-PARASITICA.

AUTHOR(S): NEWHOUSE J R [Reprint author]; MACDONALD W L
CORPORATE SOURCE: DEP PLANT PATHOL AGRIC MICROBIOL, 401 BROOKS HALL, PO BOX 6057, WEST VIGINIA UNIV, MORGANTOWN, W VA 26506-6057, USA

SOURCE: Canadian Journal of Botany, (1991) Vol. 69, No. 3, pp. 602-614.
CODEN: CJBOAW. ISSN: 0008-4026.
DOCUMENT TYPE: Article
FILE SEGMENT: BA
LANGUAGE: ENGLISH
ENTRY DATE: Entered STN: 15 Jul 1991
Last Updated on STN: 15 Jul 1991

ABSTRACT:European hypovirulent (**dsRNA**-containing) Cryphonectria parasitica strain Ep-50 was paired individually with West Virginia [USA] virulent (**dsRNA**-free) strains Ep-15-7-7 (vegetatively compatible) and Ep 7-5-1 (vegetatively incompatible) on cellophane membranes. Four to six hours after anastomoses formed, the strains were preserved using freeze-substitution and observed using transmission electron microscopy. Hyphal anastomoses betwen Ep-50 and Ep 15-7-7 showed complete cytoplasmic continuity, with microtubules and mitochondria extending through the fusion aperture. Spherical, membrane-bound virus-like particles, measuring 50-90 nm in diameter, were located in the Ep-50 hypha, the Ep 15-7-7 hypha, and the short anastomosis bridge between them. All anastomoses between the compatible strains involved a hyphal **peg** that grew toward a swelling that developed on the receiving hypha. Fusion took place between the swelling and the lateral wall of the **peg**. Anastomoses between the incompatible strains showed cellular collapse and cytoplasmic degeneration that extended away from the anastomosis area in hyphae of both strains. Because of this, vegetative incompatibility would seem to be a formidable barrier to hypovirulence conversion and biocontrol of C. parasitica.

CONCEPT CODE:
Cytology - Plant 02504
Genetics - Plant 03504
Ecology: environmental biology - Plant 07506
Virology - Plant host viruses 33508
Plant physiology - Growth, differentiation 51510
Plant physiology - Reproduction 51512
Horticulture - Temperate zone fruits and nuts 53002
Phytopathology - Diseases caused by fungi 54502
Phytopathology - Disease control 54516

INDEX TERMS:
Major Concepts
Cell Biology; Development; Ecology (Environmental Sciences); Genetics; Horticulture (Agriculture); Infection; Microbiology; Pest Assessment Control and Management; Reproduction

INDEX TERMS:
Miscellaneous Descriptors
AMERICAN CHESTNUT BLIGHT VIRUS-LIKE PARTICLES HYPHAL FUSION BIOLOGICAL CONTROL

ORGANISM:
Classifier
Ascomycetes 15100
Super Taxa
Fungi; Plantae
Taxa Notes
Fungi, Microorganisms, Nonvascular Plants, Plants

ORGANISM:
Classifier
Fagaceae 26070
Super Taxa
Dicotyledones; Angiospermae; Spermatophyta; Plantae
Taxa Notes
Angiosperms, Dicots, Plants, Spermatophytes, Vascular Plants

STN

ACCESSION NUMBER: 1992:100851 BIOSIS
DOCUMENT NUMBER: PREV199293057401; BA93:57401
TITLE: STUDIES ON THE PURIFICATION AND PROPERTIES OF RICE BUNCHY STUNT VIRUS.
AUTHOR(S): LIN Q [Reprint author]; XIE L; XIE L
CORPORATE SOURCE: LAB PLANT VIROL, FUJIAN AGRICULTURAL COLEGE, FUZHOU 350002
SOURCE: Scientia Agricultura Sinica, (1991) Vol. 24, No. 4, pp. 52-57.
CODEN: CKNYAR. ISSN: 0578-1752.
DOCUMENT TYPE: Article
FILE SEGMENT: BA
LANGUAGE: CHINESE
ENTRY DATE: Entered STN: 12 Feb 1992
Last Updated on STN: 12 Feb 1992

ABSTRACT:Purified preparation of rice bunchy stunt virus (RBSV) was obtained by using chloroform to clarify extracts, **PEG** to sediment virus particles and differential centrifugations and sucrose density gradient to concentrate virus particles. The preparation was examined with a UV spectrophotometer and showed a typical nucleoprotein spectrum with maximum absorption at 260nm and minimum at 240nm, A260/240 = 1.18 and A260/280 = 1.61. Plenty of virus particles with their size of av. 60 (58.3-61.6)nm in diameter, could be observed under Hu 12 electron microscope when stained with PTA and showed icosahedronal structures with two layers of capsid protein units clearly. The virus particles were serological trapped and decorated by Fujian antiserum againast RBSV in immunodiffusion and immunosorbent electron microscope tests. No special reaction was found between the antiserum against RBSV, RDV and RGDV. Nucleic acid was extracted from the virus preparation by means of phenol-methyl-phenol-SDS and showed a typical absorption spectrum of nucleic acid with maximum at 260nm and minimum at 228nm, A260/228 = 2.27, A260/280 = 2.02. The nucleic acid was determined to be **dsRNA** based on its stability against RNase under various ionic intensities and reaction properties with methyl-resorcinol and diphenylamine. It occupied 17.5-20.1% of RBSV particles in accordance with its UV abosrption characteristics. Electrophoresis indicated that the total M Wt (+ 106) of the ds RNA was estimated to by 16.66, with segments of 2.70, 2.30, 1.90 , 1.70, 1.68, 1.50 1.38, 1.20, 1.10, 0.60, 0.35 and 0.25. The **dsRNA** was infective when it was injected into Nephotettix cincticeps. These results suggest that RBSV is a new member of Phytoreovirus in the plant reovirus subgroup I.

CONCEPT CODE:
Ecology: environmental biology - Plant 07506
Ecology: environmental biology - Animal 07508
Genetics of bacteria and viruses 31500
Virology - Plant host viruses 33508
Agronomy - Miscellaneous and mixed crops 52502
Phytopathology - Diseases caused by viruses 54510
Economic entomology - Field, flower and truck crops 60004
Invertebrata: comparative, experimental morphology, physiology and pathology - Insecta: physiology 64076

INDEX TERMS:
Major Concepts
Agronomy (Agriculture); Ecology (Environmental Sciences); Economic Entomology; Genetics; Infection; Microbiology

INDEX TERMS:
Miscellaneous Descriptors
NEPHOTETTIX-CINCTICEPS APHID VECTOR PHYTOPATHOGEN PHYTOREOVIRUS IDENTIFICATION INFECTIVITY VIRAL GENETICS

ORGANISM:
Classifier
Reoviridae 03402
Super Taxa
dsRNA Viruses; Viruses; Microorganisms
Taxa Notes
Double-Stranded RNA Viruses, Microorganisms, Viruses

ORGANISM:
Classifier

Homoptera 75324
Super Taxa
Insecta; Arthropoda; Invertebrata; Animalia
Taxa Notes
Animals, Arthropods, Insects, Invertebrates

L15 ANSWER 12 OF 21 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 1990:331175 BIOSIS
DOCUMENT NUMBER: PREV199090039194; BA90:39194
TITLE: PARTIAL COMPLEMENTARY CLONING AND NUCLEOTIDE SEQUENCE OF RICE DWARF VIRUS GENOME.
AUTHOR(S): GAO Q [Reprint author]; OU Y-X; LIU W; PAN N-S; CHEN Z-L
CORPORATE SOURCE: NATL LAB PLANT GENET ENG, PEKING UNIV, BEIJING 100871
SOURCE: Acta Botanica Sinica, (1990) Vol. 32, No. 1, pp. 13-18. CODEN: CHWHAY. ISSN: 0577-7496.
DOCUMENT TYPE: Article
FILE SEGMENT: BA
LANGUAGE: CHINESE
ENTRY DATE: Entered STN: 24 Jul 1990
Last Updated on STN: 24 Jul 1990
ABSTRACT:Rice dwarf virus (RDV) was isolated and purified from infected rice leaves with chloroform extraction, **PEG** precipitation and sucrose gradient centrifugation. Total RDV RNA genome was separated in the agarose gel and segments of RDV RNA genome were purified. The cDNAs of several segments were synthesized with oligo dT as primer. Through cDNA mapping, subcloning and sequencing, we have obtained partial DNA sequence of those segments. Here we report the cloning and partial DNA sequence of segment 8 from RDV RNA genome.
CONCEPT CODE: Biochemistry methods - Nucleic acids, purines and pyrimidines 10052
Biochemistry studies - Nucleic acids, purines and pyrimidines 10062
Biophysics - Molecular properties and macromolecules 10506
Genetics of bacteria and viruses 31500
Virology - Plant host viruses 33508
Agronomy - Sugar crops 52510
INDEX TERMS: Major Concepts
Agronomy (Agriculture); Biochemistry and Molecular Biophysics; Genetics
INDEX TERMS: Miscellaneous Descriptors
DNA MAPPING MOLECULAR SEQUENCE DATA RNA SEQUENCE DNA SEQUENCE
ORGANISM: Classifier
Reoviridae 03402
Super Taxa
dsRNA Viruses; Viruses; Microorganisms
Taxa Notes
Double-Stranded RNA Viruses, Microorganisms, Viruses

L15 ANSWER 13 OF 21 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 1990:49657 BIOSIS
DOCUMENT NUMBER: PREV199089027021; BA89:27021
TITLE: INTESTINAL PERMEABILITY ASSESSED WITH POLYETHYLENE GLYCOLS IN CHILDREN WITH DIARRHEA DUE TO ROTAVIRUS AND COMMON BACTERIAL PATHOGENS IN A DEVELOPING COMMUNITY.
AUTHOR(S): JOHANSEN K [Reprint author]; STINTZING G; MAGNUSSON K E; SUNDQVIST T; JALIL F; MURTAZA A; KHAN S R; LINDBLAD B S; MOLLBY R; ET AL
CORPORATE SOURCE: ST GORAN'S CHILD HOSP, S-112 81 STOCKHOLM, SWED
SOURCE: Journal of Pediatric Gastroenterology and Nutrition, (1989)

Vol. 9, No. 3, pp. 307-313.
CODEN: JPGND6. ISSN: 0277-2116.
DOCUMENT TYPE: Article
FILE SEGMENT: BA
LANGUAGE: ENGLISH
ENTRY DATE: Entered STN: 11 Jan 1990
Last Updated on STN: 11 Jan 1990
ABSTRACT:Intestinal permeability was assessed with different-sized polyethylene glycols (**PEG** 400 and **PEG** 1,000) in small children with acute diarrhea. All children with acute diarrhea absorbed and excreted less ***PEG*** of all molecular sizes into the urine when compared with healthy control children ($p < 0.001$). Children with acute rotavirus infection excreted significantly less **PEG** of all sizes than children with Shigella, Salmonella, and enteropathogenic Escherichia coli (EPEC) infection ($p < 0.001$-0.01), suggesting a more severe mucosal lesion caused by rotavirus. In patients with severe malnutrition there was also a significant decrease in absorption of **PEGs** observed. In addition, malnourished patients with rotavirus diarrhea showed a pronounced decrease of **PEGs** in comparison with well-nourished patients. The ratio between the recovery of a large ***PEG*** molecule, 1,074 Da, and a small molecule, 370 Da, was utilized to assess the absorption of large molecules in relation to that of smaller ones. On applying this ratio, it was noted that the intestine in children with Shigella and EPEC infection was relatively more permeable to larger molecules than in healthy controls, while in rotavirus and Salmonella infection it was less permeable to larger molecules. In this study significant differences in the permeability characteristics were observed, suggesting etiology-specific effects on the mucosal barrier.
CONCEPT CODE: Cytology - Human 02508
Biochemistry studies - General 10060
Biophysics - Membrane phenomena 10508
Pathology - Diagnostic 12504
Digestive system - General and methods 14001
Digestive system - Pathology 14006
Pediatrics - 25000
Virology - Animal host viruses 33506
Medical and clinical microbiology - General and methods 36001
Medical and clinical microbiology - Bacteriology 36002
Medical and clinical microbiology - Virology 36006
INDEX TERMS: Major Concepts
Cell Biology; Gastroenterology (Human Medicine, Medical Sciences); Infection; Membranes (Cell Biology); Pathology; Pediatrics (Human Medicine, Medical Sciences)
INDEX TERMS: Miscellaneous Descriptors
SHIGELLA SALMONELLA ESCHERICHIA-COLI DIAGNOSIS
ORGANISM: Classifier
Reoviridae 03402
Super Taxa
dsRNA Viruses; Viruses; Microorganisms
Taxa Notes
Double-Stranded RNA Viruses, Microorganisms, Viruses
ORGANISM: Classifier
Enterobacteriaceae 06702
Super Taxa
Facultatively Anaerobic Gram-Negative Rods; Eubacteria; Bacteria; Microorganisms
Taxa Notes
Bacteria, Eubacteria, Microorganisms
ORGANISM: Classifier
Hominidae 86215
Super Taxa
Primates; Mammalia; Vertebrata; Chordata; Animalia

Taxa Notes
Animals, Chordates, Humans, Mammals, Primates, Vertebrates
REGISTRY NUMBER: 25322-68-3D (POLYETHYLENE GLYCOLS)

L15 ANSWER 14 OF 21 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 1987:168936 BIOSIS
DOCUMENT NUMBER: PREV198783087377; BA83:87377
TITLE: INTESTINAL PERMEABILITY IN SMALL CHILDREN DURING AND AFTER ROTAVIRUS DIARRHEA ASSESSED WITH DIFFERENT SIZE POLYETHYLENE GLYCOLS **PEG** 400 AND **PEG** 1000.
AUTHOR(S): STINTZING G [Reprint author]; JOHANSEN K; MAGNUSSON K E; SVENSSON L; SUNDQVIST T
CORPORATE SOURCE: ST GORAN'S CHILDREN'S HOSP, S-11281 STOCKHOLM, SWEDEN
SOURCE: Acta Paediatrica Scandinavica, (1986) Vol. 75, No. 6, pp. 1005-1009.
CODEN: APSVAM. ISSN: 0001-656X.
DOCUMENT TYPE: Article
FILE SEGMENT: BA
LANGUAGE: ENGLISH
ENTRY DATE: Entered STN: 11 Apr 1987
Last Updated on STN: 11 Apr 1987
ABSTRACT:The permeability properties of the small intestinal mucosa was investigated in nine previously healthy childen with acute diarrhea due to rotavirus. The investigation was performed after intake of a mixture in water of polyethyleneglycol molecules (**PEG** 400 and 1000) ranging from 282 to 1250 dalton in molecular weight. The 6-h urinary recovery of the ***PEGs*** was determined with high performance liquid chromatography and used to assess the permeability characteristics of the intestine. The patients served as their own controls and were investigated in the same manner after recovery 3-5 weeks later. A significantly lower urinary recovery of ***PEG*** was noted for all molecular sizes (326-1206 dalton) during acute diarrhea in comparison with the results obtained after recovery ($p < 0.001$-0.1). There was also a relatively lesser change in the urinary recovery of larger **PEG** molecules during infection, as reflected by a higher recovery ratio between 1074 and 370 dalton **PEGs**. The results indicate profound changes in the permeability characteristics of the intestine during acute rotavirus diarrhea.
CONCEPT CODE: Biophysics - Molecular properties and macromolecules 10506
Biophysics - Membrane phenomena 10508
Digestive system - General and methods 14001
Digestive system - Physiology and biochemistry 14004
Digestive system - Pathology 14006
Urinary system - Pathology 15506
Pediatrics - 25000
Virology - Animal host viruses 33506
Medical and clinical microbiology - Virology 36006
INDEX TERMS: Major Concepts
Biochemistry and Molecular Biophysics; Digestive System (Ingestion and Assimilation); Gastroenterology (Human Medicine, Medical Sciences); Infection; Membranes (Cell Biology); Pediatrics (Human Medicine, Medical Sciences); Urology (Human Medicine, Medical Sciences)
INDEX TERMS: Miscellaneous Descriptors
CHROMATOGRAPHY
ORGANISM: Classifier
Reoviridae 03402
Super Taxa
dsRNA Viruses; Viruses; Microorganisms

Taxa Notes
Double-Stranded RNA Viruses, Microorganisms, Viruses
ORGANISM: Classifier
Hominidae 86215
Super Taxa
Primates; Mammalia; Vertebrata; Chordata; Animalia
Taxa Notes
Animals, Chordates, Humans, Mammals, Primates, Vertebrates
REGISTRY NUMBER: 25322-68-3 (POLYETHYLENE GLYCOLS)
25322-68-3 (**PEG** 400)
25322-68-3 (**PEG** 1000)

L15 ANSWER 15 OF 21 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 1984:352520 BIOSIS
DOCUMENT NUMBER: PREV198478089000; BA78:89000
TITLE: THE MESOPHASE STATE OF DOUBLE STRANDED RNA AND POLY RIBO NUCLEOTIDES IS CHARACTERISTIC OF HIGH OPTICAL ACTIVITY.
AUTHOR(S): LORTKIPANIDZE G B [Reprint author]; EVDOKIMOV YU M; DEMBO A T; BARSHAVSKII YA M
CORPORATE SOURCE: INST MOL BIOL, ACAD SCI USSR, MOSCOW, USSR
SOURCE: Molekulyarnaya Biologiya (Moscow), (1984) Vol. 18, No. 2, pp. 466-473.
CODEN: MOBIBO. ISSN: 0026-8984.
DOCUMENT TYPE: Article
FILE SEGMENT: BA
LANGUAGE: RUSSIAN
ABSTRACT:A small-angle reflection in X-ray diffraction and an intense band at Å .apprx. 270 nm in the CD [circular dichroism) spectrum are assigned to compact particles that arise when mixing water-salt solutions of **PEG** (polyethylene glycol) with water-salt solutions of double-stranded RNA (ds RNA) and those of poly(A) · poly(U), and poly(I) · poly(C). The discrepancy between the 35-40 Å small-angle reflection and the .apprx. 20 Å small-angle reflection typical of double-stranded polynucleotide crystals together with the presence of the intense band in the CD spectra suggest that the **dsRNA** molecules and the molecules of polyribonucleotides exist in a mesophase (liquid crystalline) state. The compact particles of **dsRNA** and those of polyribonucleotides have either a positive or a negative band of the CD spectrum depending on **PEG** concentration, ionic strength or solution temperature.
CONCEPT CODE: Radiation biology - Radiation and isotope techniques 06504
Biochemistry methods - Nucleic acids, purines and pyrimidines 10052
Biochemistry studies - Nucleic acids, purines and pyrimidines 10062
Biophysics - Methods and techniques 10504
Biophysics - Molecular properties and macromolecules 10506
INDEX TERMS: Major Concepts
Biochemistry and Molecular Biophysics
INDEX TERMS: Miscellaneous Descriptors
X-RAY DIFFRACTION CIRCULAR DICHROISM/

L15 ANSWER 16 OF 21 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 1985:307317 BIOSIS
DOCUMENT NUMBER: PREV198579087313; BA79:87313
TITLE: ACUTE INFECTIONS WITH GIARDIA-LAMBLIA AND ROTAVIRUS DECREASE INTESTINAL PERMEABILITY TO LOW-MOLECULAR WEIGHT POLYETHYLENE GLYCOLS **PEG** 400.

AUTHOR(S): SERRANDER R [Reprint author]; MAGNUSSON K-E; SUNDQVIST T
CORPORATE SOURCE: INFEKTIONSKLINIKEN, REGIONSJUKHUSET, S-58185 LINKOPING, SWED
SOURCE: Scandinavian Journal of Infectious Diseases, (1984) Vol. 16, No. 4, pp. 339-344.
CODEN: SJIDB7. ISSN: 0036-5548.
DOCUMENT TYPE: Article
FILE SEGMENT: BA
LANGUAGE: ENGLISH

ABSTRACT:The passive intestinal permeability of patients seeking care for acute diarrhea was investigated with a liquid meal containing differently sized, low MW polyethylene glycols (**PEG** 400; MW 282-590). The subjects suffered from acute infections caused either by G. lamblia or rotavirus. The patients were studied during infection and 3-4 wk later when they had recovered clinically. It was found that both giardia and rotavirus infections were associated with decreased 6 h urinary recovery of the **PEG** molecules, particularly of the larger MW species. After the infection, the permeability properties returned towards normal values. The results show that the permeability and the absorptive capacity is altered in patients with acute G. lamblia and rotavirus infections which could be important in relation to chronic infections and malnutrition attributed to these organisms.

CONCEPT CODE: Biochemistry studies - General 10060
Digestive system - Pathology 14006
Blood - Other body fluids 15010
Virology - Animal host viruses 33506
Medical and clinical microbiology - General and methods 36001
Medical and clinical microbiology - Virology 36006
Parasitology - Medical 60504
Invertebrata: comparative, experimental morphology, physiology and pathology - Protozoa 64002

INDEX TERMS: Major Concepts
Gastroenterology (Human Medicine, Medical Sciences); Infection; Parasitology

INDEX TERMS: Miscellaneous Descriptors
HUMAN DIARRHEA

ORGANISM: Classifier
Reoviridae 03402
Super Taxa
dsRNA Viruses; Viruses; Microorganisms
Taxa Notes
Double-Stranded RNA Viruses, Microorganisms, Viruses

ORGANISM: Classifier
Flagellata 35200
Super Taxa
Protozoa; Invertebrata; Animalia
Taxa Notes
Animals, Invertebrates, Microorganisms, Protozoans

ORGANISM: Classifier
Hominidae 86215
Super Taxa
Primates; Mammalia; Vertebrata; Chordata; Animalia
Taxa Notes
Animals, Chordates, Humans, Mammals, Primates, Vertebrates

REGISTRY NUMBER: 25322-68-3 (POLYETHYLENE GLYCOLS)
25322-68-3 (**PEG** 400)

L15 ANSWER 17 OF 21 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN DUPLICATE 5
ACCESSION NUMBER: 1983:290114 BIOSIS
DOCUMENT NUMBER: PREV198376047606; BA76:47606

TITLE: INHIBITION BY GLUCO CORTICO STEROID HORMONES OF INTERFERON AND PROSTAGLANDIN E INDUCTION BY POLY RIBO INOSINIC-ACID POLY RIBO CYTIDYLIC-ACID.

AUTHOR(S): ZOR U [Reprint author]; BEN-DORI R; MAOZ I; WALLACH D; GURARI-ROTMAN D

CORPORATE SOURCE: DEP HORMONE RES, WEIZMANN INSTITUTE SCI, REHOVOT, ISRAEL

SOURCE: Journal of General Virology, (1982) Vol. 63, No. 2, pp. 359-364.
CODEN: JGVIAY. ISSN: 0022-1317.

DOCUMENT TYPE: Article

FILE SEGMENT: BA

LANGUAGE: ENGLISH

ABSTRACT:The relationship between induction of interferon (IFN) and prostaglandin E (**PGE**) production by poly (I·c) in cultured human foreskin fibroblasts (FS11) was examined. Hydrocortisone and dexamethasone (2.5 + 10-7 M), which are known inhibitors of **PGE** synthesis, significantly decreased the induction of both IFN and **PGE** in IFN-pretreated (primed) cells. Desoxycorticosterone, progesterone and estradiol were devoid of this activity. Hydrocortisone also blocked the induction of IFN by double-stranded RNA (**dsRNA**), cycloheximide and actinomycin D in FS11 cells. Arachidonic acid overcame the inhibitory effect of hydrocortisone on **PGE** production, but failed to restore IFN production in the presence of the steroid. The prostaglandin synthetase inhibitors, indomethacin, aspirin and flufenamic acid, did not change IFN production by **dsRNA** in primed FS11 cells, although prostaglandin synthesis was abolished. Although the induction of IFN and **PGE** by poly(I·c) might be consequences of the same initial event in the cell, the accumulation of **PGE** does not seem to have a regulatory effect on the synthesis of IFN in this system.

CONCEPT CODE:
Cytology - Human 02508
Biochemistry methods - Proteins, peptides and amino acids 10054
Biochemistry methods - Lipids 10056
Biochemistry methods - Carbohydrates 10058
Biochemistry studies - General 10060
Biochemistry studies - Nucleic acids, purines and pyrimidines 10062
Biochemistry studies - Proteins, peptides and amino acids 10064
Biochemistry studies - Lipids 10066
Biochemistry studies - Sterols and steroids 10067
Biochemistry studies - Carbohydrates 10068
Metabolism - Carbohydrates 13004
Metabolism - Lipids 13006
Metabolism - Proteins, peptides and amino acids 13012
Reproductive system - General and methods 16501
Endocrine - Adrenals 17004
Endocrine - Gonads and placenta 17006
Bones, joints, fasciae, connective and adipose tissue - General and methods 18001
Pharmacology - Drug metabolism and metabolic stimulators 22003
Pharmacology - Endocrine system 22016
Tissue culture, apparatus, methods and media 32500
Chemotherapy - General, methods and metabolism 38502

INDEX TERMS: Major Concepts
Cell Biology; Metabolism; Pharmacology

INDEX TERMS: Miscellaneous Descriptors
HUMAN FORE SKIN FIBROBLAST FS-11 CELLS HYDROCORTISONE DEXAMETHASONE DEOXY CORTICO STERONE PROGESTERONE ESTRADIOL CYCLO HEXIMIDE ACTINOMYCIN D METABOLIC-DRUG INDOMETHACIN ASPIRIN FLUFENAMIC-ACID ENZYME

INHIBITOR-DRUG ARACHIDONIC-ACID DOUBLE STRANDED RNA

ORGANISM: Classifier
Hominidae 86215
Super Taxa
Primates; Mammalia; Vertebrata; Chordata; Animalia
Taxa Notes
Animals, Chordates, Humans, Mammals, Primates, Vertebrates

REGISTRY NUMBER: 50-23-7 (HYDROCORTISONE)
50-02-2 (DEXAMETHASONE)
64-85-7 (DEOXYCORTICOSTERONE)
57-83-0 (PROGESTERONE)
50-28-2 (ESTRADIOL)
66-81-9 (CYCLOHEXIMIDE)
50-76-0 (ACTINOMYCIN D)
53-86-1 (INDOMETHACIN)
50-78-2 (ASPIRIN)
530-78-9 (FLUFENAMIC-ACID)
506-32-1 (ARACHIDONIC-ACID)

L15 ANSWER 18 OF 21 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN DUPLICATE 6

ACCESSION NUMBER: 1982:191368 BIOSIS
DOCUMENT NUMBER: PREV198273051352; BA73:51352
TITLE: COMPACT PARTICLES OF DOUBLE STRANDED POLY RIBO NUCLEOTIDES 1. THE CONDITIONS FOR FORMATION OF THE OPTICALLY ACTIVE DOUBLE STRANDED RNA COMPACT PARTICLES.
AUTHOR(S): LORTKIPANIDZE G B [Reprint author]; EVDOKIMOV YU M; KADYKOV V A; VARSHAVSKII YA M
CORPORATE SOURCE: INST MOL BIOL, ACAD SCI USSR, MOSCOW, USSR
SOURCE: Molekulyarnaya Biologiya (Moscow), (1980) Vol. 14, No. 6, pp. 1378-1386.
CODEN: MOBIBO. ISSN: 0026-8984.
DOCUMENT TYPE: Article
FILE SEGMENT: BA
LANGUAGE: RUSSIAN

ABSTRACT:The conditions for formation of double-stranded RNA (**dsRNA**) compact particles in water-salt solutions containing polyethylene glycol (***PEG***) were determined. In solutions of mild ionic strength (.apprx. 0.3), compact particles of **dsRNA** are characterized by an intense positive CD[circular dichroism]-band (λ [eight wavelength] 270 nm), but in solutions of high ionic strength (1.0-1.5) the particles are characterized by intense positive or negative CD-bands (λ 270 nm). Heating of solutions of a high ionic strength containing compact particles with negative CD-bands is accompanied by a change in the sign of the CD-band. The same effect is observed when the ionic strength of the solutions is decreased. Melting of compact particles as revealed by the CD-method occurs prior to the melting of the secondary structure of **dsRNA**. The intense CD-bands reflect the ordered arrangement of the chromophores of polynucleotide chain in compact particles. The reasons for the change of the sign of the CD-bands are discussed.

CONCEPT CODE: Biochemistry methods - Nucleic acids, purines and pyrimidines 10052
Biochemistry studies - General 10060
Biochemistry studies - Nucleic acids, purines and pyrimidines 10062
Biochemistry studies - Minerals 10069
Biophysics - Methods and techniques 10504
Biophysics - Molecular properties and macromolecules 10506
External effects - Temperature as a primary variable - hot 10618

Temperature - General measurement and methods 23001
INDEX TERMS: Major Concepts
Biochemistry and Molecular Biophysics
INDEX TERMS: Miscellaneous Descriptors
POLY ETHYLENE GLYCOL CIRCULAR DICHROISM WATER SALT SOLUTION
REGISTRY NUMBER: 25322-68-3 (POLYETHYLENE GLYCOL)

L15 ANSWER 19 OF 21 MEDLINE on STN
ACCESSION NUMBER: 78176823 MEDLINE
DOCUMENT NUMBER: PubMed ID: 651879
TITLE: [Compact form of synthetic polynucleotides. Relationship between secondary structure and circular dichroism spectra].
Kompaktnaia forma sinteticheskikh polinukleotidov. Sviaz' sektrov krugovogo dikhroizma so vtorichnoi strukturoi.
AUTHOR: Piatigorskaia T L; Evdokimov Iu M; Varshavskii Ia M
SOURCE: Molekuliarnaia biologiia, **(1978 Mar-Apr)** 12 (2) 404-12.
Journal code: 0105454. ISSN: 0026-8984.
PUB. COUNTRY: USSR
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: Russian
FILE SEGMENT: Priority Journals
ENTRY MONTH: 197807
ENTRY DATE: Entered STN: 19900314
Last Updated on STN: 19900314
Entered Medline: 19780715
ABSTRACT:
The formation of compact particles from synthetic double- and triplestranded polynucleotides in water-salt solutions, containing poly(ethylene glycol) (***PEG***) has been investigated. CD spectra of compact particles are characterized by intense bands (positive or negative) in the region of 270 nm, compact particles being divided into two families--psi- and psi+--according to the CD band sign. The amplitude of the CD band at 270 nm increases with the increase of CPEG. Heating of a solution, containing compact particles, results in a disappearance of the CD band, the "melting" of compact particles as revealed by the CD method occuring prior to the melting of the secondary structure of the corresponding polynucleotide. It is concluded that intense CD bands, which are characteristic of the compact form of synthetic polynucleotides, arise (similar to the case of DNA or **dsRNA**) from regular arrangement of polynucleotide chains in compact particles. The question, concerning the relation between parameters of the secondary structure of polynucleotides and their belonging either to psi- or to psi+ family is discussed. The factors, which could account for the appearance of intense bands in CD spectra of compact particles are also considered.
CONTROLLED TERM: Check Tags: Comparative Study
Circular Dichroism
Coliphages
DNA, Bacterial
DNA, Viral
English Abstract
Molecular Conformation
Nucleic Acid Conformation
Poly I-C
Polydeoxyribonucleotides
*Polynucleotides
CAS REGISTRY NO.: 24939-03-5 (Poly I-C)
CHEMICAL NAME: 0 (DNA, Bacterial); 0 (DNA, Viral); 0 (Polydeoxyribonucleotides); 0 (Polynucleotides)

L15 ANSWER 20 OF 21 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on

STN DUPLICATE 7

ACCESSION NUMBER: 1978:163084 BIOSIS
DOCUMENT NUMBER: PREV197865050084; BA65:50084
TITLE: DNA COMPACT FORM IN SOLUTION PART 12 FORMATION OF A COMPACT FORM OF DOUBLE STRANDED POLY RIBO NUCLEOTIDES IN THE PRESENCE OF POLY ETHYLENE GLYCOL.
AUTHOR(S): EVDOKIMOV YU M [Reprint author]; PYATIGORSKAYA T L; KADYKOV V A; POLIVTSEV O F; DOSCOCIL J; KOUDELKA YA; VARSHAVSKII YA M
CORPORATE SOURCE: INST MOL BIOL, ACAD SCI USSR, MOSCOW, USSR
SOURCE: Molekulyarnaya Biologiya (Moscow), (1977) Vol. 11, No. 4, pp. 891-900.
CODEN: MOBIBO. ISSN: 0026-8984.
DOCUMENT TYPE: Article
FILE SEGMENT: BA
LANGUAGE: RUSSIAN

ABSTRACT:Double-stranded [ds] polyribonucleotides (a replicative form of phage f2 RNA and poly(A) · poly(U), can adopt a compact form in solutions containing NaCl and poly(ethylene glycol) (**PEG**). EM observations show that **dsRNA** compact particles have the form of disks or doughnuts 200-400 Å in diameter. X-ray diffraction patterns from dense slurries of ***dsRNA*** compact particles show a reflection at a spacing of 35 Å, which is indicative of the existence of ordered regions in compact particles. The intense positive CD [circular dichroism] band, which is characteristic of ***dsRNA*** and poly(a) · poly(U) compact particles, presumably results from the ordered regions in the particles. Heating of the solution leads to the disappearance of the intense positive CD band, probably as a result of the destruction of the ordered structure of compact particles. Heat or acid denatured **dsRNA** molecules as well as single-stranded molecules of ribosomal RNA also form large particles in **PEG** -containing solutions. However, X-ray diffraction patterns from these particles do not show the 35 Å reflection and the specific positive band is not present in the CD spectra, which indicates that such particles lack ordered internal structure. Similar mechanisms of compactization of double-stranded polynucleotides (DNA and RNA) may exist with compact particles divided into 2 families (Ψ+ and Ψ-), differing by the secondary structure of double-stranded polynucleotides which form the particles.

CONCEPT CODE:
Microscopy - Electron microscopy 01058
Radiation biology - Radiation and isotope techniques 06504
Biochemistry methods - Nucleic acids, purines and pyrimidines 10052
Biochemistry studies - General 10060
Biochemistry studies - Nucleic acids, purines and pyrimidines 10062
Biophysics - Methods and techniques 10504
Biophysics - Molecular properties and macromolecules 10506
External effects - Temperature as a primary variable - hot 10618
Temperature - General measurement and methods 23001
Virology - Bacteriophage 33504

INDEX TERMS:
Major Concepts
Biochemistry and Molecular Biophysics; Microbiology

INDEX TERMS:
Miscellaneous Descriptors
BACTERIO PHAGE F-2 POLY ADENYLIC-ACID POLY URIDYLIC-ACID CIRCULAR DICHROISM X-RAY DIFFRACTION ELECTRON MICROSCOPY

ORGANISM:
Classifier
Viruses 03000
Super Taxa
Microorganisms
Taxa Notes

Microorganisms, Viruses
REGISTRY NUMBER: 25322-68-3 (POLYETHYLENE GLYCOL)
24936-38-7 (POLY ADENYLIC-ACID POLY URIDYLIC-ACID)

L15 ANSWER 21 OF 21 MEDLINE on STN
ACCESSION NUMBER: 76268953 MEDLINE
DOCUMENT NUMBER: PubMed ID: 8770
TITLE: A compact form of double-stranded RNA in solutions containing poly(ethyleneglycol).
AUTHOR: Evdokimov Y M; Pyatigorskaya T L; Kadikov V A; Polyvtsev O F; Doskocil J; Koudelka J; Varshavsky Y M
SOURCE: Nucleic acids research, **(1976 Jun)** 3 (6) 1533-47.
Journal code: 0411011. ISSN: 0305-1048.
PUB. COUNTRY: ENGLAND: United Kingdom
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 197611
ENTRY DATE: Entered STN: 19900313
Last Updated on STN: 19950206
Entered Medline: 19761101

ABSTRACT:
Molecules of single-stranded ribosomal RNA and double-stranded replicative form of phage f2 RNA (**dsRNA**) adopt a compact form in solutions, containing sufficiently high concentrations of salt (NaCl) and polymer (**PEG**). However, only in the cases of native **dsRNA** molecules the compact particles are characterized by a regular internal structure, which accounts for the appearance of an intense positive band in CD spectra. Heating or acidification of **PEG**-containing solutions of **dsRNA** leads to the disappearance of the intense positive CD band, which results from the "destruction" of the regular internal structure of compact particles. Comparison of properties of DNA and **dsRNA** compact particles formed in ***PEG*** -containing water-salt solutions suggests the existence of similar mechanisms of compactization of double-stranded polynucleotides.

CONTROLLED TERM: Circular Dichroism
Coliphages
Hydrogen-Ion Concentration
Nucleic Acid Conformation
Nucleic Acid Denaturation
Osmolar Concentration
*Polyethylene Glycols
*RNA, Ribosomal
*RNA, Viral
Sodium Chloride
Temperature
CAS REGISTRY NO.: 7647-14-5 (Sodium Chloride)
CHEMICAL NAME: 0 (Polyethylene Glycols); 0 (RNA, Ribosomal); 0 (RNA, Viral)

=> d iall l16 1-41

L16 ANSWER 1 OF 41 SCISEARCH COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 2005:629561 SCISEARCH
THE GENUINE ARTICLE: 934UN
TITLE: Nanoparticle targeting of anticancer drug improves therapeutic response in animal model of human epithelial cancer
AUTHOR: Kukowska-Latallo J F; Candido K A; Cao Z Y; Nigavekar S S; Majoros I J; Thomas T P; Balogh L P; Khan M K; Baker J R (Reprint)

CORPORATE SOURCE: Univ Michigan, Hlth Syst, Ctr Biol Nanotechnol, 1150 W Med Ctr Dr, 9220 MSRB3, Ann Arbor, MI 48109 USA (Reprint); Univ Michigan, Hlth Syst, Ctr Biol Nanotechnol, Ann Arbor, MI 48109 USA; Univ Michigan, Hlth Syst, Dept Radiat Oncol, Ann Arbor, MI 48109 USA
jbakerjr@umich.edu
COUNTRY OF AUTHOR: USA
SOURCE: CANCER RESEARCH, (15 JUN 2005) Vol. 65, No. 12, pp. 5317-5324.
ISSN: 0008-5472.
PUBLISHER: AMER ASSOC CANCER RESEARCH, 615 CHESTNUT ST, 17TH FLOOR, PHILADELPHIA, PA 19106-4404 USA.
DOCUMENT TYPE: Article; Journal
LANGUAGE: English
REFERENCE COUNT: 36
ENTRY DATE: Entered STN: 29 Jun 2005
Last Updated on STN: 29 Jun 2005

ABSTRACT:
Prior studies suggested that nanoparticle drug delivery might improve the therapeutic response to anticancer drugs and allow the simultaneous monitoring of drug uptake by tumors. We employed modified **PAMAM** dendritic polymers < 5 nm in diameter as carriers. Acetylated dendrimers were conjugated to folic acid as a targeting agent and then coupled to either methotrexate or tritium and either fluorescein or 6-carboxytetramethylrhodamine. These conjugates were injected i.v. into immunodeficient mice bearing human KB tumors that overexpress the folic acid receptor. In contrast to nontargeted polymer, folate-conjugated nanoparticles concentrated in the tumor and liver tissue over 4 days after administration. The tumor tissue localization of the folate-targeted polymer could be attenuated by prior i.v. injection of free folic acid. Confocal microscopy confirmed the internalization of the drug conjugates into the tumor cells. Targeting methotrexate increased its antitumor activity and markedly decreased its toxicity, allowing therapeutic responses not possible with a free drug.

CATEGORY: ONCOLOGY
SUPPL. TERM PLUS: FOLATE-BINDING PROTEIN; POSITIVE TUMOR-CELLS; IN-VITRO; KB CELLS; POLYAMIDOAMINE DENDRIMERS; STARBURST DENDRIMERS; RECEPTOR; EFFICACY; DELIVERY; **OLIGONUCLEOTIDES**

REFERENCE(S):

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	ARN PG (RPG)	Referenced Work (RWK)
ANTONY A C	1985	260	14911	J BIOL CHEM
BELZ S	1998	265	157	ANAL BIOCHEM
BIELINSKA A	1996	24	2176	NUCLEIC ACIDS RES
CAMPBELL I G	1991	51	5329	CANCER RES
CHO B K	1997	8	338	BIOCONJUGATE CHEM
DAVIS T A	1999	17	1851	J CLIN ONCOL
DELONG R	1997	86	762	J PHARM SCI
GREEN M C	2000	26	269	CANCER TREAT REV
GRIFFIN J L	2004	4	551	NAT REV CANCER
KRANZ D M	1995	92	9057	P NATL ACAD SCI USA
KRISHNA R	2000	11	265	EUR J PHARM SCI
KUKOWSKALATALLO J F	1996	93	4897	P NATL ACAD SCI USA
LEAMON C P	2004	56	1127	ADV DRUG DELIVER REV
LEAMON C P	1994	2	101	J DRUG TARGET
LEE R J	1995	1233	134	BBA-BIOMEMBRANES
MAEDA H	2000	65	271	J CONTROL RELEASE
MAJOROS I J	2003	36	5526	MACROMOLECULES
MALIK N	1999	10	767	ANTI-CANCER DRUG
MALIK N	2000	65	133	J CONTROL RELEASE
MATHIAS C J	1998	39	1579	J NUCL MED
NELSON B C	2004	325	41	ANAL BIOCHEM

NIGAVEKAR S S	2004	21	476	PHARM RES
PARK J W	2002	8	1172	CLIN CANCER RES
QUINTANA A	2002	19	1310	PHARMACEUT RES
ROBERTS J C	1996	30	53	J BIOMED MATER RES
ROSS J F	1994	73	2432	CANCER
RUND L A	1999	83	141	INT J CANCER
SAPRA P	2002	62	7190	CANCER RES
THOMAS T P	2004	86	3959	BIOPHYS J
THOMAS T P	2005			IN PRESS J MED CHEM
TUREK J J	1993	106	423	J CELL SCI
WANG S	1995	92	3318	P NATL ACAD SCI USA
WEITMAN S D	1992	52	3396	CANCER RES
WEITMAN S D	1992	52	6708	CANCER RES
WIENER E C	1997	32	748	INVEST RADIOL
WILBUR D S	1998	9	813	BIOCONJUGATE CHEM

L16 ANSWER 2 OF 41 SCISEARCH COPYRIGHT (c) 2005 The Thomson Corporation on STN

ACCESSION NUMBER: 2005:369543 SCISEARCH
THE GENUINE ARTICLE: 911IU
TITLE: Fluorescent dendrimers with a peptide cathepsin B cleavage site for drug delivery applications
AUTHOR: Fuchs S; Otto H (Reprint); Jehle S; Henklein P; Schluter A D
CORPORATE SOURCE: Free Univ Berlin, Inst Chem Biochem, Thielallee 63, D-14195 Berlin, Germany (Reprint); Free Univ Berlin, Inst Chem Biochem, D-14195 Berlin, Germany; Free Univ Berlin, Inst Chem Organ Chem, D-14195 Berlin, Germany; Humboldt Univ, Fak Med, Univ Klinikum Charite, D-10098 Berlin, Germany
hotto@chemie.fu-berlin.de; peter.henklein@charite.de
COUNTRY OF AUTHOR: Germany
SOURCE: CHEMICAL COMMUNICATIONS, (2005) No. 14, pp. 1830-1832. ISSN: 1359-7345.
PUBLISHER: ROYAL SOC CHEMISTRY, THOMAS GRAHAM HOUSE, SCIENCE PARK, MILTON RD, CAMBRIDGE CB4 0WF, CAMBS, ENGLAND.
DOCUMENT TYPE: Article; Journal
LANGUAGE: English
REFERENCE COUNT: 35
ENTRY DATE: Entered STN: 14 Apr 2005
Last Updated on STN: 14 Apr 2005

ABSTRACT:
The synthesis of a multifunctionally equipped first generation (G1) dendrimer carrying a pentapeptide with a cathepsin B cleavage site, chelating ligands for Pt2+-complexation, and a dansyl fluorescence marker is described and an investigation of its cellular uptake as well as intracellular localization by confocal fluorescence microscopy reported.

CATEGORY: CHEMISTRY, MULTIDISCIPLINARY
SUPPL. TERM PLUS: IN-VITRO; CYSTEINE PROTEASES; ANTITUMOR-ACTIVITY; **PAMAM** DENDRIMERS; HPMA COPOLYMERS; VIVO; **OLIGONUCLEOTIDES**; DOXORUBICIN; SYSTEMS; DESIGN

REFERENCE(S):

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	ARN PG (RPG)	Referenced Work (RWK)
AULENTA F	2003	39	1741	EUR POLYM J
BAKER J R	2004	245	67	METHOD MOL BIOL
BARLOS K	1991	37	513	INT J PEPT PROT RES
BOAS U	2004	33	43	CHEM SOC REV
BRYANT L H	2001	7	47	FOCUS BIOTECHNOL
CARPINO L A	1993	34	7829	TETRAHEDRON LETT
CLONINGER M J	2002	6	742	CURR OPIN CHEM BIOL

CRESPO L	2002	124	8876	J AM CHEM SOC
DEJESUS O L P	2002	13	453	BIOCONJUGATE CHEM
DELONG R	1997	86	762	J PHARM SCI
DENNIG J	2003	228	227	TOP CURR CHEM
DENNIG J	2002	90	339	REV MOL BIOTECHNOL
ESFAND R	2001	6	427	DRUG DISCOV TODAY
FUCHS S	2004	5	1167	CHEM-EUR J
GIANASI E	1999	35	994	EUR J CANCER
JULYAN P J	1999	57	281	J CONTROL RELEASE
KIM Y	1998	2	733	CURR OPIN CHEM BIOL
KITAGAWA K	2001	66	1	J ORG CHEM
KOBAYASHI H	2003	2	1	MOL IMAGING
KOJIMA C	2003	36	2183	MACROMOLECULES
KRAUSE W	2000	210	261	TOP CURR CHEM
LECAILLE F	2002	102	4459	CHEM REV
LIU M	1998	79	269	POLYM MAT SCI ENG
MALIK N	1999	10	767	ANTI-CANCER DRUG
MUSIL D	1991	10	2321	EMBO J
QINTANA A	2002	19	1310	PHARM RES
QUALMANN B	1996	35	909	ANGEW CHEM INT EDIT
SERGHERAERT C	1986		1061	J CHEM SOC P1
SHABAT D	2004	10	2626	CHEM-EUR J
SLOANE B F	1982	42	980	CANCER RES
STEVELMANS S	1996	118	7398	J AM CHEM SOC
STIBIRA S E	2002	41	1329	ANGEW CHEM INT EDIT
TURK V	2001	20	4629	EMBO J
ULBRICH K	2003	87	33	J CONTROL RELEASE
YOO H	2000	28	4225	NUCLEIC ACIDS RES

L16 ANSWER 3 OF 41 SCISEARCH COPYRIGHT (c) 2005 The Thomson Corporation on STN

ACCESSION NUMBER: 2005:179844 SCISEARCH

THE GENUINE ARTICLE: 893SM

TITLE: Versatile peptide dendrimers for nucleic acid delivery

AUTHOR: Bayele H K (Reprint); Sakthivel T; O'Donell M; Pasi K J; Wilderspin A F; Lee C A; Toth I; Florence A T

CORPORATE SOURCE: Univ Coll London, Dept Biochem & Mol Biol, Royal Free Campus, London NW3 2PF, England (Reprint); Univ London, Sch Pharm, London WC1N 1AX, England; Univ Coll London, Dept Haematol, London NW3 2PF, England
h.bayele@rfc.ucl.ac.uk

COUNTRY OF AUTHOR: England

SOURCE: JOURNAL OF PHARMACEUTICAL SCIENCES, (FEB 2005) Vol. 94, No. 2, pp. 446-457.
ISSN: 0022-3549.

PUBLISHER: JOHN WILEY & SONS INC, 111 RIVER ST, HOBOKEN, NJ 07030 USA

DOCUMENT TYPE: Article; Journal

LANGUAGE: English

REFERENCE COUNT: 47

ENTRY DATE: Entered STN: 24 Feb 2005
Last Updated on STN: 24 Feb 2005

ABSTRACT:

Dendrimers are nonviral vectors that have attracted interest on account of a number of features. They are structurally versatile because their size, shape, and surface charge can be selectively altered. Here we examine the functions of a new family of composite dendrimers that were synthesized with lipidic amino acid cores. These dendrimers are bifunctional because they are characterized by positively charged (lysine) modules for interaction with nucleic acids and neutral lipidic moieties for membrane lipid-bilayer transit. We assessed their structure-function correlations by a combination of molecular and biophysical techniques. Our assessment revealed an unexpected pleitropy

of functions subserved by these vectors that included plasmid and ***oligonucleotide*** delivery. We also generated a firefly luciferase cell line in which we could modulate luciferase activity by RNA interference. We found that these vectors could also mediate RNA suppression of luciferase expression by delivering double-stranded luciferase transcripts generated in vitro. The structural uniqueness of these lipidic peptide dendrimers coupled with their ease and specificity of assembly and the versatility in their choice of cargo, puts them in a new category of macromolecule carriers. These vectors, therefore, have potential applications as epigenetic modifiers of gene function.

CATEGORY: CHEMISTRY, MEDICINAL; CHEMISTRY, MULTIDISCIPLINARY; PHARMACOLOGY & PHARMACY

SUPPLEMENTARY TERM: dendrimer; gene delivery; vector; transfection; lipidic peptide; versatile

SUPPL. TERM PLUS: DOUBLE-STRANDED-RNA; MAMMALIAN-CELLS; GENE-TRANSFER; **ANTISENSE OLIGONUCLEOTIDES**; EFFICIENT TRANSFECTION; **PAMAM** DENDRIMERS; MESSENGER-RNA; PLASMID DNA; IN-VITRO; NUCLEOCYTOPLASMIC TRANSPORT

REFERENCE(S):

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	ARN PG (RPG)	Referenced Work (RWK)
BEHR J P	1989	86	6982	P NATL ACAD SCI USA
BELTINGER C	1995	95	1814	J CLIN INVEST
BERNSTEIN E	2001	409	363	NATURE
BIELINSKA A	1996	24	2176	NUCLEIC ACIDS RES
BLESSING T	1998	95	1427	P NATL ACAD SCI USA
BLOOMFIELD V A	1996	6	334	CURR OPIN STRUC BIOL
BOTTGER M	1988	950	221	BIOCHIM BIOPHYS ACTA
BOUSSIF O	1995	92	7297	P NATL ACAD SCI USA
CAMPBELL M J	1995	18	1027	BIOTECHNIQUES
CHU C J	1990	7	824	PHARMACEUT RES
CLEVER J	1991	88	7333	P NATL ACAD SCI USA
COLIGE A	1993	32	7	BIOCHEMISTRY-US
DEAN N M	1994	269	16416	J BIOL CHEM
EICHMAN J D	2002			DENDRIMERS OTHER DEN
ELBASHIR S M	2001	20	6877	EMBO J
ELBASHIR S M	2001	411	494	NATURE
ELBASHIR S M	2001	15	188	GENE DEV
ESFAND R	2001	6	427	DRUG DISCOV TODAY
FIRE A	1998	391	806	NATURE
FRITZ J D	1996	7	1395	HUM GENE THER
GAO X	1991	179	280	BIOCHEM BIOPH RES CO
GORLICH D	1996	271	1513	SCIENCE
GREBER U F	1998			SELF ASSEMBLING COMP
HAENSLER J	1993	4	372	BIOCONJUGATE CHEM
KANEDA Y	1989	243	375	SCIENCE
KOLLEN W J W	1996	7	1577	HUM GENE THER
KUKOWSKALATALLO J F	1996	93	4897	P NATL ACAD SCI USA
LEWIS J G	1996	93	3176	P NATL ACAD SCI USA
MISTRY A R	1997	22	718	BIOTECHNIQUES
NECKERS L M	1994		180	GENE THERAPEUTICS ME
OHNO M	1998	92	327	CELL
PADDISON P J	2002	99	1443	P NATL ACAD SCI USA
RADLER J O	1997	275	810	SCIENCE
REMY J S	1994	5	647	BIOCONJUGATE CHEM
SAKTHIVEL T	1998	15	776	PHARMACEUT RES
SHARP P A	2001	15	485	GENE DEV
TANG M X	1997	4	823	GENE THER
TARRASON G	1995	5	193	ANTISENSE RES DEV
TOMALIA D A	1990	29	138	ANGEW CHEM INT EDIT
TOTH I	1999	9	93	STP PHARMA SCI

TRUBETSKOY V S	1992	1131	311	BIOCHIM BIOPHYS ACTA
TUSCHL T	1999	13	3191	GENE DEV
WAGNER R W	1993	260	1510	SCIENCE
WAGNER E	1991	88	4255	P NATL ACAD SCI USA
WU G Y	1988	27	887	BIOCHEMISTRY-US
YOO H	2000	28	4225	NUCLEIC ACIDS RES
ZAMORE P D	2000	101	25	CELL

L16 ANSWER 4 OF 41 EMBASE
on STN DUPLICATE 1

ACCESSION NUMBER: 2005069953 EMBASE

TITLE: Real-time detection and efficacy of **antisense oligonucleotides** delivered by **PAMAM** dendrimers in living cells.

AUTHOR: Maksimenko A.; Helin V.; Bertrand J.R.; Gottikh M.; Malvy C.

CORPORATE SOURCE: A. Maksimenko, Bioalliance Pharma SA, 59, boulevard M.-Valin, 75015 Paris, France.
andrei.maksimenko@bioalliancepharma.com

SOURCE: Journal of Drug Delivery Science and Technology, (2005) Vol. 15, No. 1, pp. 75-79.
Refs: 8
ISSN: 1157-1489 CODEN: JDDSAL

COUNTRY: France
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 004 Microbiology
029 Clinical Biochemistry
LANGUAGE: English
SUMMARY LANGUAGE: English
ENTRY DATE: Entered STN: 20050224
Last Updated on STN: 20050224

ABSTRACT: The aim of the present investigation was to study the behavior of ***PAMAM*** dendrimer-nucleic acid complexes in vitro and living cells. We demonstrated the rapid and sensitive detection of mRNA in living cells using molecular beacon pair, one with a donor and the other with a quenching fluorophore that hybridises to adjacent regions on the same mRNA target, resulting in fluorescence resonance energy transfer (FRET). The molecular beacon was composed of a 13-nt loop structure containing the **antisense** sequence that can hybridise with the AUG translational start site of the Friend env gene. It was shown that SuperFect may stimulate the **antisense** ON-RNA hybridisation. The secondary structure of **antisense** ***oligonucleotide*** was optimized. An **antisense** sequence-specific inhibition of 75% was obtained for one reporter gene with a stem-loop ODN containing four phosphorothioate groups, two at each end.

CONTROLLED TERM: Medical Descriptors:
*molecular beacon
*gene delivery system
HeLa cell
plasmid
synthesis
biotechnology
genetic transfection
gene expression
flow cytometry
enzyme assay
fluorescence resonance energy transfer
gene targeting
human
human cell
article
Drug Descriptors:

*dendrimer
***antisense oligonucleotide**
*polymer
messenger RNA
DNA
beta galactosidase
green fluorescent protein

CAS REGISTRY NO.: (DNA) 9007-49-2

L16 ANSWER 5 OF 41 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
DUPLICATE 2

ACCESSION NUMBER: 2005:176017 BIOSIS
DOCUMENT NUMBER: PREV200500173042
TITLE: Synthesis and functional evaluation of DNA-assembled polyamidoamine dendrimer clusters for cancer cell-specific targeting.
AUTHOR(S): Choi, Youngseon; Thomas, Thommey; Kotlyar, Alina; Islam, Mohammad T.; Baker, James R. Jr. [Reprint Author]
CORPORATE SOURCE: Sch EngnDept Biochem Engn, Univ Michigan, Ann Arbor, MI, 48109, USA
jbakerjr@umich.edu
SOURCE: Chemistry & Biology (Cambridge), (January 2005) Vol. 12, No. 1, pp. 35-43. print.
ISSN: 1074-5521.
DOCUMENT TYPE: Article
LANGUAGE: English
ENTRY DATE: Entered STN: 4 May 2005
Last Updated on STN: 4 May 2005

ABSTRACT:We sought to produce dendrimers conjugated to different biofunctional moieties (fluorescein (FITC) and folic acid (FA)), and then link them together using complementary DNA **oligonucleotides** to produce clustered molecules that target cancer cells that overexpress the high-affinity folate receptor. Amine-terminated, generation 5 polyamidoamine (G5 **PAMAM**) dendrimers are first partially acetylated and then conjugated with FITC or FA, followed by the covalent attachment of complementary, 5'-phosphate-modified 34-base-long **oligonucleotides**. Hybridization of these ***oligonucleotide*** conjugates led to the self-assembly of the FITC-and FA-conjugated dendrimers. In vitro studies of the DNA-linked dendrimer clusters indicated specific binding to KB cells expressing the folate receptor. Confocal microscopy also showed the internalization of the dendrimer cluster. These results demonstrate the ability to design and produce supramolecular arrays of dendrimers using **oligonucleotide** bridges. This will also allow for further development of DNA-linked dendrimer clusters as imaging agents and therapeutics.

CONCEPT CODE: Biochemistry studies - General 10060
Biochemistry studies - Vitamins 10063
Pathology - Diagnostic 12504
Pathology - Therapy 12512
Pharmacology - General 22002
Pharmacology - Clinical pharmacology 22005
Pharmacology - Blood and hematopoietic agents 22008
Neoplasms - Pathology, clinical aspects and systemic effects 24004
Neoplasms - Therapeutic agents and therapy 24008

INDEX TERMS: Major Concepts
Pharmacology; Tumor Biology

INDEX TERMS: Diseases
cancer: neoplastic disease, drug therapy, therapy
Neoplasms (MeSH)

INDEX TERMS: Chemicals & Biochemicals
amine-terminated, generated 5 polyamidoamine dendrimer: antineoplastic-drug; complementary DNA

oligonucleotide; fluorescein: diagnostic-drug; folate receptor; folic acid: hematinic-drug, hematologic-drug, vitamin-drug

INDEX TERMS: Methods & Equipment
confocal microscopy: imaging and microscopy techniques, laboratory techniques

ORGANISM: Classifier
Hominidae 86215
Super Taxa
Primates; Mammalia; Vertebrata; Chordata; Animalia
Organism Name
KB cell line (cell line)
Taxa Notes
Animals, Chordates, Humans, Mammals, Primates, Vertebrates

REGISTRY NUMBER: 2321-07-5 (fluorescein)
59-30-3 (folic acid)

L16 ANSWER 6 OF 41 SCISEARCH COPYRIGHT (c) 2005 The Thomson Corporation on STN

ACCESSION NUMBER: 2004:437828 SCISEARCH
THE GENUINE ARTICLE: 816YO
TITLE: Enhanced cellular uptake of a triplex-forming **oligonucleotide** by nanoparticle formation in the presence of polypropylenimine dendrimers
AUTHOR: Santhakumaran L M; Thomas T; Thomas T J (Reprint)
CORPORATE SOURCE: Univ Med & Dent New Jersey, Robert Wood Johnson Med Sch, Dept Med, 125 Paterson St, CAB 7090, New Brunswick, NJ 08903 USA (Reprint); Univ Med & Dent New Jersey, Robert Wood Johnson Med Sch, Dept Med, New Brunswick, NJ 08903 USA; Univ Med & Dent New Jersey, Robert Wood Johnson Med Sch, Dept Environm & Occupat Med, New Brunswick, NJ 08903 USA; Univ Med & Dent New Jersey, Robert Wood Johnson Med Sch, Environm & Occupat Hlth Sci Inst, New Brunswick, NJ 08903 USA; Univ Med & Dent New Jersey, Robert Wood Johnson Med Sch, Canc Inst New Jersey, New Brunswick, NJ 08903 USA
COUNTRY OF AUTHOR: USA
SOURCE: NUCLEIC ACIDS RESEARCH, (APR 2004) Vol. 32, No. 7, pp. 2102-2112.
ISSN: 0305-1048.
PUBLISHER: OXFORD UNIV PRESS, GREAT CLARENDON ST, OXFORD OX2 6DP, ENGLAND.
DOCUMENT TYPE: Article; Journal
LANGUAGE: English
REFERENCE COUNT: 47
ENTRY DATE: Entered STN: 28 May 2004
Last Updated on STN: 28 May 2004

ABSTRACT:
We used polypropylenimine dendrimers for delivering a 31 nt triplex-forming ***oligonucleotide*** (ODN) in breast, prostate and ovarian cancer cell lines, using P-32-labeled ODN. Dendrimers enhanced the uptake of ODN by similar to14-fold in MDA-MB-231 breast cancer cells, compared with control ODN uptake. Dendrimers exerted their effect in a concentration- and molecular weight-dependent manner, with generation 4 (G-4) dendrimer having maximum efficacy. A similar increase in ODN uptake was found with MCF-7 and SK-BR-3 (breast), LNCaP (prostate) and SK-OV-3 (ovarian) cancer cells. The dendrimers had no significant effect on cell viability at concentrations at which maximum ODN uptake occurred. [H-3]Thymidine incorporation showed that complexing the ODN with G-4 significantly increased the growth-inhibitory effect of the ODN. Western blot analysis showed a significant 65% reduction of c-myc protein level in ODN-G-4 treated cells compared with that of ODN-treated/control cells. Gel electrophoretic analysis showed that ODN remained intact in cells even after 48

h of treatment. The hydrodynamic radii of nanoparticles formed from ODN in the presence of the dendrimers were in the range of 130-280 nm, as determined by dynamic laser light scattering. Taken together, our results indicate that polypropylenimine dendrimers might be useful vehicles for delivering therapeutic **oligonucleotides** in cancer cells.

CATEGORY: BIOCHEMISTRY & MOLECULAR BIOLOGY

SUPPL. TERM PLUS: LASER-LIGHT SCATTERING; NONVIRAL GENE DELIVERY; **ANTISENSE OLIGONUCLEOTIDES**; DNA DELIVERY; IN-VITRO; TRANSFECTION EFFICIENCY; POTENTIAL APPLICATIONS; POLYAMINE ANALOGS; **PAMAM** DENDRIMERS; MOLECULAR-WEIGHT

REFERENCE(S):

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	ARN PG (RPG)	Referenced Work (RWK)
BAEZA I	1987	26	6387	BIOCHEMISTRY-US
BIELINSKA A	1996	24	2176	NUCLEIC ACIDS RES
BOLETTA A	1997	8	1243	HUM GENE THER
BOUSSIF O	1995	92	7297	P NATL ACAD SCI USA
BRAASCH D A	2002	41	4503	BIOCHEMISTRY-US
BRAZEAU G A	1998	15	680	PHARMACEUT RES
CHOI Y S	2004	4	391	NANO LETT
COONEY M	1988	241	456	SCIENCE
DAUTY E	2002	9	743	GENE THER
DEBRABANDERVAND.EM	1993	105	1370	ANGEW CHEM INT EDIT
DOBBELSTEIN M	2003	92	219	VIRUS RES
EVANS H M	2003	91	075501	PHYS REV LETT
FILION M C	1998	162	159	INT J PHARM
FISCHER D	1999	16	1273	PHARMACEUT RES
GEWIRTZ A M	1998	92	712	BLOOD
GODBEY W T	1999	45	268	J BIOMED MATER RES
HAENSLER J	1993	4	372	BIOCONJUGATE CHEM
HERMISTON T W	2002	9	1022	CANCER GENE THER
JUNGHANS M	2001	1544	177	BBA-PROTEIN STRUCT M
KIRCHEIS R	2001	53	341	ADV DRUG DELIVER REV
KOBAYASHI H	2001	61	4966	CANCER RES
KOBAYASHI H	2003	2	1	MOL IMAGING
KOPER G J M	1997	119	6512	J AM CHEM SOC
LEBEDEVA I	2001	41	403	ANNU REV PHARMACOL
LIM Y B	2002	13	1181	BIOCONJUGATE CHEM
LIU C M	2002	80	620	J MOL MED-JMM
LIU G	2001	276	3479	J BIOL CHEM
LYSIK M A	2003	92	1559	J PHARM SCI
MALIK N	2000	65	133	J CONTROL RELEASE
NEWKOME G R	2001			DENDRIMERS DENDRONS
NGUYEN T T	2002	89	018101	PHYS REV LETT
ROBERTS J C	1996	30	53	J BIOMED MATER RES
SAMINATHAN M	2002	30	3722	NUCLEIC ACIDS RES
SEIDMAN M M	2003	112	487	J CLIN INVEST
SHAH D S	2000	208	41	INT J PHARM
TANG M X	1997	4	823	GENE THER
THOMSON R C	1995	7	23	J BIOMAT SCI-POLYM E
THOMAS R M	1999	38	13328	BIOCHEMISTRY-US
THOMAS T	1994	29	189	BREAST CANCER RES TR
TOMALIA D A	1985	17	117	POLYM J
VIJAYANATHAN V	2001	40	13644	BIOCHEMISTRY-US
VIJAYANATHAN V	2004	32	127	NUCLEIC ACIDS RES
VIJAYANATHAN V	2002	41	14085	BIOCHEMISTRY-US
YOO H	2000	28	4225	NUCLEIC ACIDS RES
ZINSELMEYER B H	2002	19	960	PHARMACEUT RES
ZUBER G	2001	52	245	ADV DRUG DELIVER REV
ZUHORN I S	2002	83	2096	BIOPHYS J

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ACCESSION NUMBER: 2005:4089 SCISEARCH
THE GENUINE ARTICLE: 877PO
TITLE: Preparation of **oligonucleotide** arrays with high-density DNA deposition and high hybridization efficiency
AUTHOR: Park J W; Jung Y; Jung Y H; Seo J S; Lee Y (Reprint)
CORPORATE SOURCE: Korea Adv Inst Sci & Technol, Dept Chem, Taejon 305701, South Korea (Reprint); Korea Adv Inst Sci & Technol, Ctr Mol Design & Synth, Taejon 305701, South Korea; Macrogene Inc, Seoul 110061, South Korea; Seoul Natl Univ, Coll Med, Dept Biochem & Mol Biol, Seoul 110744, South Korea Younghoon.Lee@kaist.ac.kr
COUNTRY OF AUTHOR: South Korea
SOURCE: BULLETIN OF THE KOREAN CHEMICAL SOCIETY, (20 NOV 2004) Vol. 25, No. 11, pp. 1667-1670. ISSN: 0253-2964.
PUBLISHER: KOREAN CHEMICAL SOC, 635-4 YEOGSAM-DONG, KANGNAM-GU, SEOUL 135-703, SOUTH KOREA.
DOCUMENT TYPE: Article; Journal
LANGUAGE: English
REFERENCE COUNT: 28
ENTRY DATE: Entered STN: 13 Jan 2005
Last Updated on STN: 13 Jan 2005

ABSTRACT:
In DNA microarray produced by DNA-deposition technology, DNA-immobilization and -hybridization yields on a solid support are most important factors for its accuracy and sensitivity. We have developed a dendrimeric support using silylated aldehyde slides and polyamidoamine (**PAMAM**) dendrimers. An ***oligonucleotide*** array was prepared through a crosslinking between the dendrimeric support and an **oligonucleotide**. Both DNA-immobilization and -hybridization yields on the solid support increased by the modification with the dendrimers. The increase of the immobilization and hybridization efficiency seems to result from a three-dimensional arrangement of the attached ***oligonucleotide.*** Therefore, our dendrimeric support may provide a simple and efficient solution to the preparation of DNA microarrays with high-density DNA-deposition and high hybridization efficiency.

CATEGORY: CHEMISTRY, MULTIDISCIPLINARY
SUPPLEMENTARY TERM: dendrimer; DNA chip; hybridization; immobilization; **oligonucleotide**
SUPPL. TERM PLUS: DENDRIMER MONOLAYERS; IMMOBILIZATION; MICROARRAYS; SUPPORTS; SURFACE; MICROCHIPS; ATTACHMENT; CHEMISTRY; SEQUENCE; PROBE

REFERENCE(S):

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	ARN PG (RPG)	Referenced Work (RWK)
AFANASSIEV V	2000	28	E66	NUCLEIC ACIDS RES
BEIER M	2000	28	E11	NUCLEIC ACIDS RES
BENTERS R	2002	30	e10	NUCLEIC ACIDS RES
BENTERS R	2001	2	686	CHEMBIOCHEM
BLIZNYUK V N	1998	39	5249	POLYMER
CHEN W	2000	16	15	LANGMUIR
CHRISEY L A	1996	24	3031	NUCLEIC ACIDS RES
GUO Z	1994	22	5456	NUCLEIC ACIDS RES
GUSCHIN D	1997	250	203	ANAL BIOCHEM
HACIA J G	1998	26	4975	NUCLEIC ACIDS RES
JANG N H	2002	23	1790	B KOR CHEM SOC
KIM S	1997	407	353	FEBS LETT
KUMAR A	2000	28	E71	NUCLEIC ACIDS RES

LIPSHUTZ R J	1999	21	20	NAT GENET S
MANSFIELD M L	1996	37	3835	POLYMER
MATSON R S	1994	217	306	ANAL BIOCHEM
MATTHEWS O A	1997	23	1	PROG POLYM SCI
PROUDNIKOV D	1998	259	34	ANAL BIOCHEM
RAGHAVACHARI N	2003	312	101	ANAL BIOCHEM
REHMAN F N	1999	27	649	NUCLEIC ACIDS RES
SABANAYAGAM C R	2000	28	E33	NUCLEIC ACIDS RES
SALO H	1999	10	815	BIOCONJUGATE CHEM
SAMBROOK J	1988			MOL CLONING LAB MANU
SHCHEPINOV M S	1997	25	1155	NUCLEIC ACIDS RES
SHCHEPINOV M S	1997	25	4447	NUCLEIC ACIDS RES
TOKUHISA H	1998	120	4492	J AM CHEM SOC
TOMALIA D A	1990	29	138	ANGEW CHEM INT EDIT
YOSHIOKA M	1991	566	361	J CHROMATOGR-BIOMED

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ACCESSION NUMBER: 2004:868459 SCISEARCH
THE GENUINE ARTICLE: 856NT

TITLE: Application of Starburst (TM) **PAMAM** dendrimers as DNA carriers in vitro

AUTHOR: Guo C Y; Wang H (Reprint); Lin Y H; Cai Q L

CORPORATE SOURCE: Chinese Acad Med Sci, Inst Basic Med Sci, Dept Mol Parasitol, Beijing 100005, Peoples R China (Reprint); Peking Union Med Coll, Beijing 100005, Peoples R China hengwang@pumc.edu.cn

COUNTRY OF AUTHOR: Peoples R China

SOURCE: PROGRESS IN BIOCHEMISTRY AND BIOPHYSICS, (SEP 2004) Vol. 31, No. 9, pp. 804-811.
ISSN: 1000-3282.

PUBLISHER: SCIENCE CHINA PRESS, 16 DONGHUANGCHENGGEN NORTH ST, BEIJING 100717, PEOPLES R CHINA.

DOCUMENT TYPE: Article; Journal

LANGUAGE: Chinese

REFERENCE COUNT: 35

ENTRY DATE: Entered STN: 22 Oct 2004
Last Updated on STN: 22 Oct 2004

ABSTRACT:

Starburst(TM) **PAMAM** dendrimers are novel polymers with a molecular architecture characterized by regular, dentritic branching with radial symmetry. Having high density of positive charges on their surfaces in physiological condition because of the protonization of amino groups on the surfaces, and complexing with genetic materials on the basis of electrostatic interactions, those Starburst(TM) **PAMAM** dendrimers deliver genes into alive cells. In order to characterize the potential effects of Starburst(TM) ***PAMAM*** dendrimers as a carrier for DNA transfection, six different types generations of Starburst(TM) **PAMAM** dendrimers were investigated for their capabilities in binding DNA, and the effects on both DNA transfection and maintenance of cell viability was evaluated in vitro. The experiments demonstrated that it was the full generations but not the half generations of Starburst(TM) **PAMAM** dendrimer could transfect eukaryotic cells efficiently. The dendrimer/DNA complexes were very steady, no dissociation of the complexes was detectable in a large scope of pH (2 similar to 10). The complexation of Starburst(TM) **PAMAM** dendrimer and DNA prevent the reaction that endonuclease dissociates the DNA. In a certain range of dendrimers to DNA charge ratios, the Starburst(TM) **PAMAM** dendrimer with higher generations showed much better transfection efficiency than those with lower generations. The transfection efficiency was also variable in different cell lines. Starburst(TM) **PAMAM** dendrimers complexing with DNA have no or very low cytotoxicity at the concentrations effective for DNA transfection (less than or equal to 1. 3 x 10(-1) g/L). However, the

cytotoxicity of Starburst(TM) **PAMAM** dendrimers without binding DNA could be detected at a lower concentration. The results demonstrated that Starburst(TM) **PAMAM** dendrimers, as a novel type of low toxicity, non-viral DNA delivery vehicle, had promising potential to mediate DNA transfection in vitro. It provide primary experimental basis for the application of the nanometer material-Starburst(TM) **PAMAM** dendrimers in vivo as DNA delivery carrier.

CATEGORY: BIOCHEMISTRY & MOLECULAR BIOLOGY; BIOPHYSICS

SUPPLEMENTARY TERM: DNA delivery; Starburst (TM) **PAMAM** dendrimers; transfection; nonviral vectors

SUPPL. TERM PLUS: GENE DELIVERY; POLYAMIDOAMINE DENDRIMERS; **ANTISENSE** OLIGODEOXYNUCLEOTIDES; DENDRITIC MACROMOLECULES; EFFICIENT TRANSFER; **OLIGONUCLEOTIDES**; TRANSFECTION; COMPLEXES; POLYMERS; VACCINE

REFERENCE(S):

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	ARN PG (RPG)	Referenced Work (RWK)
BIELINSKA A U	1997	1353	180	BBA-GENE STRUCT EXPR
BIELINSKA A U	1999	10	843	BIOCONJUGATE CHEM
BRAZEAU G A	1998	15	680	PHARMACEUT RES
BRODY S L	1994	716	90	ANN NY ACAD SCI
BRONTE V	2001	1	53	CURR GENE THER
DELONG R	1997	86	762	J PHARM SCI
DUNLAP D D	1997	25	3095	NUCLEIC ACIDS RES
EICHMAN J D	2000	3	232	PHARM SCI TECHNOL TO
ELSAYED M	2001	18	23	PHARMACEUT RES
FERKOL T	1993	92	2394	J CLIN INVEST
FISCHER D	1999	16	1272	PHARM RES
GAO X	1995	2	710	GENE THER
GAO X	1996	35	1027	BIOCHEMISTRY-US
GODBEY W T	1999	96	5177	P NATL ACAD SCI USA
HAWKER C J	1990	112	7638	J AM CHEM SOC
HELIN V	1999	18	1721	NUCLEOS NUCLEOT
HUGHES J A	1996	13	404	PHARMACEUT RES
KOWALCZYK D W	1999	55	751	CELL MOL LIFE SCI
KUKOWSKALATALLO J F	1999	264	253	BIOCHEM BIOPH RES CO
KUKOWSKALATALLO J F	1996	93	4897	P NATL ACAD SCI USA
LEWIS J G	1996	93	3176	P NATL ACAD SCI USA
LUNDSTROM K	2001	1	19	CURR GENE THER
LV F L	2001	28	832	PROG BIOCHEM BIOPHYS
MINICHIELLO V	2002	14	73	J AM ACAD NURSE PRAC
QIN L H	1998	9	553	HUM GENE THER
RAJUR S B	1997	8	935	BIOCONJUGATE CHEM
ROBINSON H L	2002	2	239	NAT REV IMMUNOL
SHAH D S	2000	208	41	INT J PHARM
SINGH P	1994	40	1845	CLIN CHEM
TANG M X	1997	4	823	GENE THER
TOMALIA D A	1985	17	117	POLYM J
WANG K R	1998		304	CELL BIOL
WOOLEY K L	1991	113	4252	J AM CHEM SOC
YAMAMOTO S	2002	55	37	JPN J INFECT DIS
YOO H	2000	28	4225	NUCLEIC ACIDS RES

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ACCESSION NUMBER: 2004:238753 SCISEARCH

THE GENUINE ARTICLE: 780MA

TITLE: Current status of delivery systems to improve target efficacy of **oligonucleotides**

AUTHOR: Shoji Y (Reprint); Nakashima H

CORPORATE SOURCE: St Marianna Univ, Sch Med, Dept Microbiol, Miyamae Ku, 2-16-1 Sugao, Kawasaki, Kanagawa 2168511, Japan (Reprint); St Marianna Univ, Sch Med, Dept Microbiol, Miyamae Ku, Kawasaki, Kanagawa 2168511, Japan
COUNTRY OF AUTHOR: Japan
SOURCE: CURRENT PHARMACEUTICAL DESIGN, (2004) Vol. 10, No. 7, pp. 785-796.
ISSN: 1381-6128.
PUBLISHER: BENTHAM SCIENCE PUBL LTD, PO BOX 1673, 1200 BR HILVERSUM, NETHERLANDS.
DOCUMENT TYPE: General Review; Journal
LANGUAGE: English
REFERENCE COUNT: 120
ENTRY DATE: Entered STN: 19 Mar 2004
Last Updated on STN: 19 Mar 2004

ABSTRACT:
The tragic failure of gene therapy resulted in rolling back the research of gene-based medicine. Because of the poor delivery of gene-based medicines, such as **antisense oligonucleotides**, ribozyme, triplex, or gene both in vitro and in vivo, further development of gene-based medicines as therapeutic agents have stagnated. Although the delivery system plays a critical role in the overall efficacy of **oligonucleotides**, inappropriate target selection, improper evaluation methods and misinterpretation of results often caused the pessimistic view. Still. the decoding of the whole human genome has rekindled the enthusiastic development of delivery. tools for gene-based medicine. We would like to focus on the newly developed delivery systems mainly for **antisense** ***oligonucleotides*** in this article. There are two ways to improve delivery efficacy of **antisense oligonucleotides**: One is the chemical modification of the **antisense oligonucleotide** backbone. The other way is by means of delivery vehicles, such as cationic liposomes, synthetic polymers, or non-viral vectors. We will review the current status of delivery vehicles both in vitro and in vivo. Delivery efficiency depends on the **oligonucleotides**' chemistry, length, size, net charge, cell/tissue type and administration route. It is difficult to deduce a common rule that affects delivery efficiency. Some cells like keratinocytes rapidly internalize **oligonucleotides** without a delivery system, which is contrary to common belief. Although we cannot extensively cover all reports, we will summarize several experiments with delivery system in vitro and in vivo. We will then address the possible factors promoting the efficient delivery of **oligonucleotides**.

CATEGORY: PHARMACOLOGY & PHARMACY
SUPPLEMENTARY TERM: **oligonucleotides**; delivery system; gene-based medicine
SUPPL. TERM PLUS: PHOSPHOROTHIOATE **ANTISENSE OLIGONUCLEOTIDES**; MIXED-BACKBONE **OLIGONUCLEOTIDES**; CELLULAR UPTAKE; IN-VIVO; C-MYC; POLYALKYLCYANOACRYLATE NANOPARTICLES; TISSUE DISTRIBUTION; PHYSICOCHEMICAL PROPERTIES; INTRACELLULAR DELIVERY; **PAMAM** DENDRIMERS

REFERENCE(S):

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	ARN PG (RPG)	Referenced Work (RWK)
AGRAWAL S	1995	50	571	BIOCHEM PHARMACOL
AGRAWAL S	1997	94	2620	P NATL ACAD SCI USA
AGRAWAL S	1995	287	7	CLIN PHARMACOKINET
AKHTAR S	1992	2	139	TRENDS CELL BIOL
ALAHARI S K	1996	50	808	MOL PHARMACOL
ANDERSON J M	1995	269	467	AM J PHYSIOL
ARIMA H	1997	86	438	J PHARM SCI
ARORA V	2002	91	1009	J PHARM SCI

BELTINGER C	1995	95	1814	J CLIN INVEST
BENIMETSKAYA L	1997	3	414	NAT MED
BIELINSKA A	1996	24	2176	NUCLEIC ACIDS RES
BOADO R J	1994	5	406	BIOCONJUGATE CHEM
BOCHOT A	1998		1089	P 2 WORLD APGI APV M
BOCHOT A	2000	19	131	PROG RETIN EYE RES
BOCHOT A	1998	15	1364	PHARMACEUT RES
BOCHOT A	1998	6	309	J DRUG TARGET
BOFFA L C	2000	60	2258	CANCER RES
BOUSSIF O	1995	92	7297	P NATL ACAD SCI USA
BRAND R M	1998	111	1166	J INVEST DERMATOL
BRAND R M	2001	1	1	ANTISENSE NUCLEIC A
BUDKER V	2000	2	76	J GENE MED
CHAVANY C	1994	11	1370	PHARMACEUT RES
CHAVANY C	1994	11	1370	PHARMACEUT RES
CHAVANY C	1992	9	441	PHARMACEUT RES
CHOCHUNG Y S	2002	3	934	CURR OPIN INVEST DRU
CROOKE S T	1996	277	923	J PHARMACOL EXP THER
DANCEY J E	2002	8	2259	CURR PHARM DESIGN
DEFIFE K M	2002	5	683	CURR OPIN DRUG DI DE
DELIE F	2001	214	25	INT J PHARM
DELONG R K	1999	27	3334	NUCLEIC ACIDS RES
DELONG R	1997	86	762	J PHARM SCI
DESMET M D	1999	7	189	OCUL IMMUNOL INFLAMM
DESMIDT P C	1991	19	4695	NUCLEIC ACIDS RES
DHEUR S	1999	9	515	ANTISENSE NUCLEIC A
EDELMAN E R	1995	76	176	CIRC RES
ELIASSARI A	1994	8	325	COLLOID SURF A
EMILE C	1996	3	187	DRUG DELIV
FATTAL E	1998	53	137	J CONTROL RELEASE
FELGNER P L	1989	337	387	NATURE
FERREIRO M G	2002	19	755	PHARMACEUT RES
FRITZ H	1997	195	272	J COLLOID INTERF SCI
GARCIACHAUMONT C	2000	87	255	PHARMACOL THERAPEUT
GEARY R S	2001	2	562	CURR OPIN INVEST NEW
GONZALEZ F M	2001	73	381	J CONTROL RELEASE
GOODCHILD J	1990	1	165	BIOCONJUGATE CHEM
GRAHAM M J	1998	286	447	J PHARMACOL EXP THER
HENRY K	1987	103	17	AM J OPHTHALMOL
HENRY S P	1997	7	503	ANTISENSE NUCLEIC A
HUGHES J A	1996	13	404	PHARMACEUT RES
ISLAM A	2000	7	373	J DRUG TARGET
IVERSEN P L	1992	2	211	ANTISENSE RES DEV
JEONG J H	2003	14	473	BIOCONJUGATE CHEM
KANAMARU T	1998	5	235	J DRUG TARGET
KATHMANN M	1999	360	421	N-S ARCH PHARMACOL
KHAN A	2000	8	319	J DRUG TARGET
KOBYLANSKA A	1999	46	679	ACTA BIOCHIM POL
KRIEG A M	1995	374	546	NATURE
KUKOWSKALATALLO J F	1996	93	4897	P NATL ACAD SCI USA
LAKTIONOV P P	1999	27	2315	NUCLEIC ACIDS RES
LAMBERT G	2001	47	99	ADV DRUG DELIVER REV
LEWIS J G	1996	93	3176	P NATL ACAD SCI USA
LIEB L M	1997	86	1022	J PHARM SCI
LOKE S L	1988	141	282	CURR TOP MICROBIOL
MAESAKI S	2002	8	433	CURR PHARM DESIGN
MANOHARAN M	2002	12	103	ANTISENSE NUCLEIC A
MARCUSSON E G	1998	26	2016	NUCLEIC ACIDS RES
NAKAI D	1996	278	1362	J PHARMACOL EXP THER
NAKADA Y	1996	13	38	PHARMACEUT RES
NESTLE F O	1994	103	569	J INVEST DERMATOL
NIELSEN P E	1995	24	167	ANNU REV BIOPH BIOM

NOONBERG S B	1993	101	727	J INVEST DERMATOL
OGATA N	1999	18	261	CURR EYE RES
OLDENBURG K R	1995	84	915	J PHARM SCI
OPALINSKA J B	2002	1	503	NAT REV DRUG DISCOV
ORR R M	2001	3	288	CURR OPIN MOL THER
PANDOLFI D	1999	18	2051	NUCLEOS NUCLEOT
PEIR P	1999	1418	71	BIOCHIM BIOPHYS ACTA
PITHA J	1983		113	TARGET DRUGS
PLENAT F	1995	147	124	AM J PATHOL
PUTNEY S D	1999	9	451	ANTISENSE NUCLEIC A
RAHMAN M A	1991	1	319	ANTISENSE RES DEV
RAOOF A A	2002	17	131	EUR J PHARM SCI
REDENTI E	2001	53	235	ADV DRUG DELIVER REV
REGNIER V	1998	15	1596	PHARMACEUT RES
RIFAI A	1996	149	717	AM J PATHOL
SARMIENTO U M	1994	4	99	ANTISENSE RES DEV
SCHWAB G	1994	91	10460	P NATL ACAD SCI USA
SCHWAB G	1994	5	55	ANN ONCOL
SHI W	2002	87	119	BRIT J CANCER
SHOJI Y	1998	5	261	J DRUG TARGET
SHOJI Y	1996	40	1670	ANTIMICROB AGENTS CH
SOMIA N	2000	1	91	NAT REV GENET
STEIN C A	1993	32	4855	BIOCHEMISTRY-US
STEIN C A	1998	8	129	ANTISENSE NUCLEIC A
STEWART A J	1996	50	1487	MOL PHARMACOL
SUMMERTON J	1997	7	187	ANTISENSE NUCLEIC A
TAKAKURA Y	2002	10	99	J DRUG TARGET
TOJO K J	1994	123	59	MATH BIOSCI
TREMBLAY M	1999	32	51	SYNAPSE
TURTURRO F	2003	10	100	GENE THER
VLASSOV V V	1994	1197	95	BBA-REV BIOMEMBRANES
VLASSOV V V	1993	327	271	FEBS LETT
WALKER T L	1998	87	387	J PHARM SCI
WANG H	1999	96	13989	P NATL ACAD SCI USA
WANG H	2001	1	177	CURR CANC DRUG TARGE
WANG L X	1998	9	749	BIOCONJUGATE CHEM
WEBB M S	1999	1	458	CURR OPIN MOL THER
WEI Z P	1996	24	655	NUCLEIC ACIDS RES
WIGENS M	1998	290	119	ARCH DERMATOL RES
YAKUBOV L A	1989	86	6454	P NATL ACAD SCI USA
YANAGIHARA K	2002	8	475	CURR PHARM DESIGN
YAZAKI T	1996	50	236	MOL PHARMACOL
YOO H	2000	28	4225	NUCLEIC ACIDS RES
ZAMECNIF P C	1978	78	280	P NATL ACAD SCI USA
ZELPHATI O	1998	1390	119	BBA-LIPID LIPID MET
ZELPHATI O	1996	13	1367	PHARMACEUT RES
ZEWERT T E	1995	212	286	BIOCHEM BIOPH RES CO
ZHOU W Q	1998	8	3269	BIOORG MED CHEM LETT
ZHU X	2002	23	2683	BIOMATERIALS
ZON G	1988	5	539	PHARMACEUT RES

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ACCESSION NUMBER: 2004:482199 SCISEARCH
THE GENUINE ARTICLE: 820SQ
TITLE: Designed dendrimer syntheses by self-assembly of single-site, ssDNA functionalized dendrons
AUTHOR: DeMattei C R; Huang B H; Tomalia D A (Reprint)
CORPORATE SOURCE: Cent Michigan Univ, Dendrit NanoTechnol Inc, 2625 Denison Dr, Mt Pleasant, MI 48858 USA (Reprint); Cent Michigan Univ, Dendrit NanoTechnol Inc, Mt Pleasant, MI 48858 USA
COUNTRY OF AUTHOR: USA

SOURCE: NANO LETTERS, (MAY 2004) Vol. 4, No. 5, pp. 771-777.
ISSN: 1530-6984.
PUBLISHER: AMER CHEMICAL SOC, 1155 16TH ST, NW, WASHINGTON, DC 20036 USA.
DOCUMENT TYPE: Article; Journal
LANGUAGE: English
REFERENCE COUNT: 57
ENTRY DATE: Entered STN: 11 Jun 2004
Last Updated on STN: 11 Jun 2004

ABSTRACT:
Single site, functionalized, single stranded (ssDNA) dendri-poly(amidoamine) (**PAMAM**) di-dendrons have been synthesized by covalently conjugating complementary 32 base pair **oligonucleotides** to single-site, thiol functionalized dendri-**PAMAM** di-dendrons possessing neutral or anionic surface groups. Combining these complementary (ss-DNA) functionalized ***PAMAM*** di-dendrons at appropriate assembly temperatures produced Watson-Crick base paired (dsDNA) cores, surrounded by four **PAMAM** dendrons. These novel core-shell nanostructures represent a new class of precise monodisperse, linear-dendritic architectural copolymers. Using comparative gel electrophoresis, it was demonstrated that these self-assembled (di-dendron) dendrimers could be hemispherically differentiated as a function of surface chemistry as well as generational size. This new supramacromolecular approach offers a very facile and versatile strategy for the combinatorial design of size, shape, and surface substituents for both homogeneous and differentiated dendritic nanostructures.

CATEGORY: CHEMISTRY, MULTIDISCIPLINARY; MATERIALS SCIENCE, MULTIDISCIPLINARY
SUPPL. TERM PLUS: DOUBLE-STRANDED DNA; IONIZATION MASS-SPECTROMETRY; **OLIGONUCLEOTIDE** DENDRIMERS; POLYAMIDOAMINE DENDRIMERS; DIRECTED SYNTHESIS; CHEMISTRY; POLYMERS; SURFACE; SHAPE; MALDI

REFERENCE(S):

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	ARN PG (RPG)	Referenced Work (RWK)
ALIVISATOS A P	1996	382	609	NATURE
BROTHERS H M	1998	814	233	J CHROMATOGR A
CAO Y W	2001	123	7961	J AM CHEM SOC
CHOI Y S	2004	4	391	NANO LETT
CHOW H F	2003	59	3815	TETRAHEDRON
DUBIN P L	1993	635	51	J CHROMATOGR
DVORNIC P R	1995	98	403	MACROMOL SYMP
EICHMAN J D	2001		441	DENDRIMERS OTHER DEN
ESFAND R	2001	6	427	DRUG DISCOV TODAY
FRECHET J M J	2001			DENDRIMERS OTHER DEN
FRECHET J M J	1994	263	1710	SCIENCE
GOPIDAS K R	2003	125	6491	J AM CHEM SOC
GUO W H	2003	125	3901	J AM CHEM SOC
HECHT S	2001	40	74	ANGEW CHEM INT EDIT
HUDSON S D	1997	278	449	SCIENCE
HUMMELEN J C	1997	3	1489	CHEM-EUR J
KALLOS G J	1991	5	383	RAPID COMMUN MASS SP
KASAI S	2002	12	951	BIOORG MED CHEM LETT
KIRPEKAR F	1999	71	2334	ANAL CHEM
KUKOWSKALATALLO J F	1996	93	4897	P NATL ACAD SCI USA
LECCHI P	1995	6	972	J AM SOC MASS SPECTR
LI Z	2002	30	1558	NUCLEIC ACIDS RES
LITTLE D P	1997	169	323	INT J MASS SPECTROM
LIU L	2003	125	12110	J AM CHEM SOC
LOTHIANTOMALIA M K	1997	53	15495	TETRAHEDRON
LOWETH C J	1999	38	1808	ANGEW CHEM INT EDIT
MATTHEWS O A	1998	23	1	PROG POLYM SCI

MBINKYO J K N	2001	1	249	ADV MATER
MIRKIN C A	1996	382	607	NATURE
NEWKOME G R	1996			DENDRITIC MOL
NORDHOFF E	1993	21	3347	NUCLEIC ACIDS RES
PERCEC V	1996	118	9855	J AM CHEM SOC
PERCEC V	1998	391	161	NATURE
SHCHEPINOV M S	1999	27	3035	NUCLEIC ACIDS RES
SHCHEPINOV M S	1997	25	4447	NUCLEIC ACIDS RES
SINGH P	2001		463	DENDRIMERS DENDRITIC
STORHOFF J J	1999	99	1849	CHEM REV
TAM J P	1989	86	9084	P NATL ACAD SCI USA
TATON T A	2000	289	1757	SCIENCE
TOMALIA D A	2003			HDB NANOSCIENCE ENG
TOMALIA D A	2003	59	3799	TETRAHEDRON
TOMALIA D A	1985	17	117	POLYM J
TOMALIA D A	1993	1	193	SUPRAMOL CHEM
TOMALIA D A	1996	101	243	MACROMOL SYMP
TOMALIA D A	2002	40	2719	J POLYM SCI POL CHEM
TOMALIA D A	2002	99	5081	P NATL ACAD SCI USA
TOMALIA D A	1995	272	62	SCI AM
TOMALIA D A	1994	6	529	ADV MATER
TOMALIA D A	2000		359	SUPRAMOLECULAR POLYM
TOMALIA D A	1990	29	138	ANGEW CHEM INT EDIT
TURRO N J	2001		309	DENDRIMERS OTHER DEN
WATKINS D M	1997	13	3136	LANGMUIR
WEI Y	2002	297	1536	SCIENCE
WILLNER I	2001	40	1861	ANGEW CHEM INT EDIT
ZENG F W	1997	97	1681	CHEM REV
ZHANG C	2001		239	DENDRIMERS OTHER DEN

STN Patent No. (RPN)	Year (RPY)	Ref. Inventor/Assignee (RIN)	Type	Ref. Patent No. (RPN)
US 6020457	2000	KLIMASH J W		US 6020457

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ACCESSION NUMBER: 2004:285984 SCISEARCH
THE GENUINE ARTICLE: 803EO
TITLE: H-3 dendrimer nanoparticle organ/tumor distribution
AUTHOR: Nigavekar S S; Sung L Y; Llanes M; El-Jawahri A; Lawrence T S; Becker C W; Balogh L; Khan M K (Reprint)
CORPORATE SOURCE: Univ Michigan, Dept Radiat Oncol, Ann Arbor, MI 48109 USA (Reprint); Univ Michigan, Michigan Mem Phoenix Project, Ann Arbor, MI 48109 USA; Univ Michigan, Dept Internal Med, Ctr Biol Nanotechnol, Ann Arbor, MI 48109 USA
COUNTRY OF AUTHOR: USA
SOURCE: PHARMACEUTICAL RESEARCH, (MAR 2004) Vol. 21, No. 3, pp. 476-483.
ISSN: 0724-8741.
PUBLISHER: KLUWER ACADEMIC/PLENUM PUBL, 233 SPRING ST, NEW YORK, NY 10013 USA.
DOCUMENT TYPE: Article; Journal
LANGUAGE: English
REFERENCE COUNT: 30
ENTRY DATE: Entered STN: 2 Apr 2004
Last Updated on STN: 2 Apr 2004

ABSTRACT:
Purpose. To determine the in vivo biodistribution for differently charged poly(amidoamine) (**PAMAM**) dendrimers in B16 melanoma and DU145 human prostate cancer mouse tumor model systems.
Methods. Neutral (NSD) and positive surface charged (PSD) generation 5 (d

= 5 nm) **PAMAM** dendrimers were synthesized by using H-3-labeled acetic anhydride and tested in vivo. Dendrimer derivatives were injected intravenously, and their biodistribution was determined via liquid scintillation counting of tritium in tissue and excretory samples. Mice were also monitored for acute toxicity.

Results. Both PSD and NSD localized to major organs and tumor. Dendrimers cleared rapidly from blood, with deposition peaking at 1 h for most organs and stabilizing from 24 h to 7 days postinjection. Maximal excretion occurred via urine within 24 h postinjection. Neither dendrimer showed acute toxicity.

Conclusions. Changes in the net surface charge of polycationic ***PAMAMs*** modify their biodistribution. PSD deposition into tissues is higher than NSD, although the biodistribution trend is similar. Highest levels were found in lungs, liver, and kidney, followed by those in tumor, heart, pancreas, and spleen, while lowest levels were found in brain. These nanoparticles could have future utility as systemic biomedical delivery devices.

CATEGORY: CHEMISTRY, MULTIDISCIPLINARY; PHARMACOLOGY & PHARMACY

SUPPLEMENTARY TERM: biodistribution; melanoma; **PAMAM** dendrimers; prostate cancer; tritiated nanoparticles

SUPPL. TERM PLUS: POLY(AMIDOAMINE) **PAMAM** DENDRIMERS; STARBURST DENDRIMERS; **ANTISENSE OLIGONUCLEOTIDES** ; BIOLOGICAL EVALUATION; FOLATE RECEPTOR; CELLS; DELIVERY; AGENTS; CANCER; NANOCOMPOSITES

REFERENCE(S):

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	ARN PG (RPG)	Referenced Work (RWK)
BALOGH L P	2003	2	94	PHARMA CHEM
BALOGH L	2002	20	35	CHIM OGGI
BIELINSKA A	1996	24	2176	NUCLEIC ACIDS RES
BIELINSKA A	2002	4	395	J NANOPART RES
BROWN J M	1998	58	1408	CANCER RES
BROWN L F	1997	79	233	EXS
DELONG R	1997	86	762	J PHARM SCI
EICHMAN J D	2000	3	232	PHARM SCI TECHNOL TO
ELSAYED M	2001	18	23	PHARMACEUT RES
ESFAND R	2001	6	427	DRUG DISCOV TODAY
FOLKMAN J	1996		181	CANC MED
FOLKMAN J	1995	1	27	NAT MED
GRUNT T W	1986	2	575	SCANNING ELECTRON MI
HASHIZUME H	2000	156	1363	AM J PATHOL
JANSEN J F G A	1994	266	1226	SCIENCE
KOBAYASHI H	2001	12	100	BIOCONJUGATE CHEM
KUKOWSKALATALLO J F	1996	93	4897	P NATL ACAD SCI USA
MAJOROS I J	2003	36	5526	MACROMOLECULES
MALIK N	1999	10	767	ANTI-CANCER DRUG
OREILLY M S	1994	79	315	CELL
PETERSON J	2003	39	33	EUR POLYM J
QUINTANA A	2002	19	1310	PHARMACEUT RES
RADUCHEL B	1998	79	516	POLYM MAT SCI ENG
ROBERTS J C	1996	30	53	J BIOMED MATER RES
SHUKLA S	2003	14	158	BIOCONJUGATE CHEM
STEWART P A	1987	67	697	J NEUROSURG
TOMALIA D A	1990	29	138	ANGEW CHEM INT EDIT
WILBUR D S	1998	9	813	BIOCONJUGATE CHEM
YOO H	1999	16	1799	PHARMACEUT RES
ZHANG C X	2002	106	10316	J PHYS CHEM B

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ACCESSION NUMBER: 2004:284496 SCISEARCH

THE GENUINE ARTICLE: 802NQ
TITLE: DNA-directed synthesis of generation 7 and 5 **PAMAM** dendrimer nanoclusters
AUTHOR: Choi Y S; Mecke A; Orr B G; Holl M M B; Baker J R (Reprint)
CORPORATE SOURCE: Univ Michigan, Sch Engn, Dept Biomed Engn, Ann Arbor, MI 48109 USA (Reprint); Univ Michigan, Sch Literature Art & Sci, Dept Phys, Ann Arbor, MI 48109 USA; Univ Michigan, Sch Literature Art & Sci, Dept Chem, Ann Arbor, MI 48109 USA; Univ Michigan, Sch Med, Dept Internal Med, Ctr Biol Nanotechnol, Ann Arbor, MI 48109 USA
COUNTRY OF AUTHOR: USA
SOURCE: NANO LETTERS, (MAR 2004) Vol. 4, No. 3, pp. 391-397. ISSN: 1530-6984.
PUBLISHER: AMER CHEMICAL SOC, 1155 16TH ST, NW, WASHINGTON, DC 20036 USA.
DOCUMENT TYPE: Article; Journal
LANGUAGE: English
REFERENCE COUNT: 28
ENTRY DATE: Entered STN: 2 Apr 2004
Last Updated on STN: 2 Apr 2004

ABSTRACT:
A novel nanostructure was constructed using two different generations of polyamidoamine (**PAMAM**) dendrimers and three sets of complementary ***oligonucleotides*** (34, 50, and 66 bases in length). The ***oligonucleotides*** were covalently conjugated to partially acetylated generation 5 and 7 **PAMAM** dendrimers, and these conjugates were characterized by agarose gel electrophoresis. The agarose gel electrophoresis appearance of these covalently linked **oligonucleotide** dendrimers; was also compared to electrostatically bound **oligonucleotide**-dendrimer complexes. Equimolar amounts of the G5 and G7 conjugates were then hybridized together to allow for the DNA-directed sell-assembly of supramolecular clusters. Dynamic light scattering (DLS) analysis indicated that the overall size of the DNA-linked dendrimer clusters tended to increase according to the length of the **oligonucleotide** used ranging from 30 to 50 nm, which agreed with the diameter of dendrimer nanoclusters predicted by molecular modeling. The DNA-linked novel dendrimer nanoclusters were also examined with tapping-mode atomic force microscopy (AFM) to distinguish the DNA-linked structure from a nonlinked simple G7/G5 dendrimer mixture. AFM image analysis suggested that the distance between the DNA-linked dendrimers; was significantly larger than what was seen after simple mixing of G7/G5 dendrimers. The mixture showed a few dendrimers; physically in contact with an interdendrimer distance of 8-10 nm. The interdendrimer distance of the nanoclusters linked with the 50-base-long **oligonucleotide** pairs was measured to be 21 +/- 2 nm, which is in agreement with the theoretical length of the **oligonucleotides** duplex. These results suggest that ***PAMAM*** dendrimers can be self-assembled via complementary ***oligonucleotides*** to form supramolecular nanoclusters.

CATEGORY: CHEMISTRY, MULTIDISCIPLINARY; MATERIALS SCIENCE, MULTIDISCIPLINARY
SUPPL. TERM PLUS: ATOMIC-FORCE MICROSCOPY; CORE-SHELL TECTO(DENDRIMERS); SINGLE-STRANDED-DNA; POLY(AMIDOAMINE) DENDRIMERS; STARBURST DENDRIMERS; POLYAMIDOAMINE DENDRIMERS; DRUG-DELIVERY; IN-VITRO; **OLIGONUCLEOTIDES**; VISUALIZATION

REFERENCE(S):

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	ARN PG (RPG)	Referenced Work (RWK)
ALIVISATOS A P	1996	382	609	NATURE
BELL S A	2003	14	488	BIOCONJUGATE CHEM
BETLEY T A	2002	18	3127	LANGMUIR

BETLEY T A	2001	17	2768	LANGMUIR
BIELINSKA A U	1997	1353	180	BBA-GENE STRUCT EXPR
BIELINSKA A	1996	24	2176	NUCLEIC ACIDS RES
CHU B C F	1983	11	6513	NUCLEIC ACIDS RES
DELONG R	1997	86	762	J PHARM SCI
ELIZALDE O	2000	17	236	PART PART SYST CHAR
ESFAND R	2001	6	427	DRUG DISCOV TODAY
JACKSON C L	1998	31	6259	MACROMOLECULES
KUKOWSKALATALLO J F	1996	93	4897	P NATL ACAD SCI USA
LI J	2000	16	5613	LANGMUIR
MAJOROS I J	2003	36	5526	MACROMOLECULES
MIRKIN C A	1996	382	607	NATURE
OTTAVIANI M F	2000	33	7842	MACROMOLECULES
PATRI A K	2002	6	466	CURR OPIN CHEM BIOL
QUINTANA A	2002	19	1310	PHARMACEUT RES
RICHARDSON S C W	2001	2	1023	BIOMACROMOLECULES
STORHOFF J J	1999	99	1849	CHEM REV
TINLAND B	1997	30	5763	MACROMOLECULES
TOMALIA D A	1990	29	138	ANGEW CHEM INT EDIT
TOMALIA D A	1996	101	243	MACROMOL SYMP
TOMALIA D A	1994	6	529	ADV MATER
TOMIOKA N	1998	37	1531	ANGEW CHEM INT EDIT
TUNG C H	2000	11	605	BIOCONJUGATE CHEM
UPPULURI S	2000	12	796	ADV MATER
WAYBRIGHT S M	2001	123	1828	J AM CHEM SOC

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ACCESSION NUMBER: 2004:882632 SCISEARCH
THE GENUINE ARTICLE: 857QY
TITLE: A novel anionic dendrimer for improved cellular delivery of **antisense oligonucleotides**
AUTHOR: Hussain M; Shchepinov M S; Sohail M; Benter I F; Hollins A J; Southern E M; Akhtar S (Reprint)
CORPORATE SOURCE: Univ Wales Coll Cardiff, Welsh Sch Pharm, Ctr Genomebased Therapeut, King Edward 7 Ave, Cardiff, S Glam, Wales (Reprint); Univ Wales Coll Cardiff, Welsh Sch Pharm, Ctr Genomebased Therapeut, Cardiff, S Glam, Wales; Aston Univ, Pharmaceut Sci Res Inst, Birmingham B4 7ET, W Midlands, England; Univ Oxford, Dept Biochem, Oxford OX1 3QU, England; Kuwait Univ, Fac Med, Dept Pharmacol, Safat 13060, Kuwait
SaghirAtchtar@cardiff.ac.uk
COUNTRY OF AUTHOR: Wales; England; Kuwait
SOURCE: JOURNAL OF CONTROLLED RELEASE, (14 SEP 2004) Vol. 99, No. 1, pp. 139-155.
ISSN: 0168-3659.
PUBLISHER: ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS.
DOCUMENT TYPE: Article; Journal
LANGUAGE: English
REFERENCE COUNT: 45
ENTRY DATE: Entered STN: 29 Oct 2004
Last Updated on STN: 29 Oct 2004

ABSTRACT:
The optimal design of hybridisation-competent **antisense** ***oligonucleotides*** (ODNs) coupled with an efficient delivery system appear to be important prerequisites for the successful use of ***antisense*** reagents for gene silencing. We selected an ***antisense*** ODN complementary to an accessible region of the epidermal growth factor receptor (EGFR) mRNA with the aid of an **antisense** ***oligonucleotide*** scanning array. The scanning array comprised 2684

antisense ODN sequences targeting the first 120 nts in the coding region of EGFR mRNA. The array-designed **antisense** ODN was covalently conjugated to a novel anionic dendrimer using a pentaerythritol-based phosphoroamidite synthon via automated DNA synthesis and the ability of this conjugate to effectively deliver and down-regulate EGFR expression in cancer cells was evaluated. Each dendrimeric structure had nine ODN molecules covalently linked to a common centre at their 3' termini. This dendrimer conjugate was markedly more stable to serum nucleases compared to the free ODNs and the cellular uptake of ODN-dendrimer conjugates was up to 100-fold greater as compared to mannitol, a marker for fluid phase endocytosis, and up to 4-fold greater than naked ODN in cancer cells. ODN-dendrimer uptake was energy-dependent and mediated, at least in part, via binding to cell surface proteins; a process that was inhibited by self-competition and by competition with free ODN, salmon sperm DNA, heparin and dextran sulphate. Fluorescent microscopy studies showed a combination of punctate and more diffuse cytosolic distribution pattern for fluorescently labelled ODN-dendrimer conjugate in A431 cells implying internalization by endocytosis followed by release and sequestration of the conjugate into the cytosol. Little or no conjugate appeared to be present in the nuclei of A431 cells. In vitro RNase H-mediated cleavage assays confirmed that covalently conjugated **antisense** ODNs in the dendrimer conjugate were able to hybridize and cleave the array-defined hybridisation target site within the EGFR mRNA without the need for ODN dissociation from the conjugate. In cell culture, ODN-dendrimer conjugates were effective in inhibiting cancer cell growth that correlated with a marked knockdown in EGFR protein expression. These data highlight a novel anionic dendrimer delivery system for gene silencing **oligonucleotides** that improved their biological stability, cellular delivery and **antisense** activity in cultured cancer cells.

CATEGORY: CHEMISTRY, MULTIDISCIPLINARY; PHARMACOLOGY & PHARMACY

SUPPLEMENTARY TERM: DNA array; dendrimer; **antisense**; EGFR; cellular delivery; stability; gene silencing

SUPPL. TERM PLUS: GROWTH-FACTOR RECEPTOR; **PAMAM** DENDRIMERS; PHOSPHOROTHIOATE **OLIGONUCLEOTIDES**; SCANNING ARRAYS; MESSENGER-RNA; IN-VITRO; COMPLEMENTARY **OLIGONUCLEOTIDES**; CELLS; REAGENTS; HYBRIDIZATION

REFERENCE(S):

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	ARN PG (RPG)	Referenced Work (RWK)
AKHTAR S	1992	2	139	TRENDS CELL BIOL
AKHTAR S	1991	19	5551	NUCLEIC ACIDS RES
AKHTAR S	1996	6	197	ANTISENSE NUCLEIC A
AKHTAR S	2000	44	3	ADV DRUG DELIVER REV
AKHTAR S	1998	5	225	J DRUG TARGET
ALAHARI S K	1998	286	419	J PHARMACOL EXP THER
ALINO S F	1997	54	9	BIOCHEM PHARMACOL
BECK G F	1996	13	1028	PHARMACEUT RES
BIELINSKA A	1996	24	2176	NUCLEIC ACIDS RES
BOADO R J	1992	3	519	BIOCONJUGATE CHEM
BOHULA E A	2003	278	15991	J BIOL CHEM
COULSON J M	1996	50	314	MOL PHARMACOL
DAGLE J M	1991	1	11	ANTISENSE RES DEV
EICHMAN J D	2000	3	232	PHARM SCI TECHNOL TO
ESFAND R	2001	6	427	DRUG DISCOV TODAY
FELL P L	1997	7	319	ANTISENSE NUCLEIC A
HAENSLER J	1993	4	372	BIOCONJUGATE CHEM
HAWLEY P	1996	6	185	ANTISENSE NUCLEIC A
HO S P	1996	24	1901	NUCLEIC ACIDS RES
HOLLINS A J	2004	21	458	PHARM RES
HUGHES M D	2001	6	303	DRUG DISCOV TODAY
JAASKELAINEN I	2002	2	307	MINI REV MED CHEM

JULIANO R L	1999	16	494	PHARMACEUT RES
JULIANO R L	2000	2	297	CURR OPIN MOL THER
LEE R J	1997	14	173	CRIT REV THER DRUG
MAIER M	1995	1	235	BIOMED PEPT PROTEINS
MALIK N	2000	65	133	J CONTROL RELEASE
MONIA B P	1996	2	668	NAT MED
PETCH A K	2003	66	819	BIOCHEM PHARMACOL
SHCHEPINOV M S	1999	27	3035	NUCLEIC ACIDS RES
SHCHEPINOV M S	1997	25	4447	NUCLEIC ACIDS RES
SHOJI Y	1996	40	1670	ANTIMICROB AGENTS CH
SOHAIL M	2002	77	43	ADV BIOCHEM ENG BIOT
SOHAIL M	2001	29	2041	NUCLEIC ACIDS RES
SOHAIL M	2001	170	181	METH MOL B
SOHAIL M	1999	5	646	RNA
SOHAIL M	2000	44	23	ADV DRUG DELIVER REV
SOUTHERN E M	1997	209	38	CIBA F SYMP
SOUTHERN E M	1994	22	1368	NUCLEIC ACIDS RES
TANG M X	1997	4	823	GENE THER
TENASBROEK A L M A	2002	269	583	EUR J BIOCHEM
WIWATTANAPATAPEE R	2000	17	991	PHARMACEUT RES
YAKUBOV L A	1989	86	6445	P NATL ACAD SCI USA
YOO H	1999	16	1799	PHARMACEUT RES
ZHAO Q	1993	3	53	ANTISENSE RES DEV

L16 ANSWER 14 OF 41 MEDLINE on STN

ACCESSION NUMBER: 2004122923 MEDLINE
DOCUMENT NUMBER: PubMed ID: 15013240
TITLE: Hepatocyte targeting of 111In-labeled oligo-DNA with avidin or avidin-dendrimer complex.
AUTHOR: Mamede Marcelo; Saga Tsuneo; Ishimori Takayoshi; Higashi Tatsuya; Sato Noriko; Kobayashi Hisataka; Brechbiel Martin W; Konishi Junji
CORPORATE SOURCE: Department of Nuclear Medicine and Diagnostic Imaging, Graduate School of Medicine, Kyoto University, 54 Kawahara-cho, Shogoin, Sakyo-ku, Kyoto 606-8507, Japan.
SOURCE: Journal of controlled release : official journal of the Controlled Release Society, (2004 Feb 20) 95 (1) 133-41. Journal code: 8607908. ISSN: 0168-3659.
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200409
ENTRY DATE: Entered STN: 20040312
Last Updated on STN: 20040917
Entered Medline: 20040916

ABSTRACT:
To establish an effective nonviral gene transfer vector to hepatocytes, various oligo-carrier complexes were developed employing dendrimer (G4) and avidin-biotin systems (Av-bt), and their biodistribution were evaluated. In-111-labeled-oligo, without any carriers, showed low uptake in normal organs other than the kidney (21.48% ID/g at 15 min, 18.48% ID/g at 60 min). In contrast, 111In-oligo coupled with avidin through biotin (111In-oligo-bt-Av) showed very high accumulation in the liver (50.95% at 15 min, 47.88% at 60 min). 111In-oligo complexed with G4 showed high uptake in the kidney and spleen, but its hepatic uptake was relatively low (13.12% at 15 min, 10.67% at 60 min). When both G4 and Av-bt systems were employed, 111In-oligo/G4-bt-Av showed extremely high uptake in the lung (182.33% at 15 min, 125.54% at 60 min), probably due to the formation of large molecular weight complex and aggregates which are trapped in the lung, and its hepatic uptake was lower than 111In-oligo-bt-Average 111In-oligo-bt-Av, which exhibited the highest hepatic uptake in vivo, also showed high and rapid internalization into hepatocytes.

The avidin-biotin system seems to have potential as a carrier of oligo-DNA to the liver.

CONTROLLED TERM: Check Tags: Female
Animals
*Avidin: CH, chemistry
Chelating Agents
*DNA: AD, administration & dosage
DNA: PK, pharmacokinetics
Drug Carriers
*Gene Transfer Techniques
*Hepatocytes: ME, metabolism
Indium Radioisotopes: DU, diagnostic use
Mice
Mice, Inbred BALB C
***Oligonucleotides: AD, administration & dosage**
Oligonucleotides: PK, pharmacokinetics
Oligonucleotides, Antisense: AD, administration & dosage
Oligonucleotides, Antisense: PK, pharmacokinetics
Polyamines: CH, chemistry
Research Support, Non-U.S. Gov't
Tissue Distribution

CAS REGISTRY NO.: 1405-69-2 (Avidin); 9007-49-2 (DNA)

CHEMICAL NAME: 0 (Chelating Agents); 0 (Drug Carriers); 0 (Indium Radioisotopes); 0 (**Oligonucleotides**); 0 (**Oligonucleotides, Antisense**); 0 (**PAMAM** Starburst); 0 (Polyamines)

L16 ANSWER 15 OF 41 SCISEARCH COPYRIGHT (c) 2005 The Thomson Corporation on STN

ACCESSION NUMBER: 2004:118678 SCISEARCH
THE GENUINE ARTICLE: 767LQ
TITLE: Dendrimers in drug research
AUTHOR: Boas U (Reprint); Heegaard P M H
CORPORATE SOURCE: Danish Vet Inst, Dept Immunol & Biochem, Bulowsvej 27, DK-1790 Copenhagen, Denmark (Reprint); Danish Vet Inst, Dept Immunol & Biochem, DK-1790 Copenhagen, Denmark
COUNTRY OF AUTHOR: Denmark
SOURCE: CHEMICAL SOCIETY REVIEWS, (10 JAN 2004) Vol. 33, No. 1, pp. 43-63.
ISSN: 0306-0012.
PUBLISHER: ROYAL SOC CHEMISTRY, THOMAS GRAHAM HOUSE, SCIENCE PARK, MILTON RD, CAMBRIDGE CB4 0WF, CAMBS, ENGLAND.
DOCUMENT TYPE: General Review; Journal
LANGUAGE: English
REFERENCE COUNT: 158
ENTRY DATE: Entered STN: 13 Feb 2004
Last Updated on STN: 13 Feb 2004

ABSTRACT:
Dendrimers are versatile, derivatisable, well-defined, compartmentalised chemical polymers with sizes and physicochemical properties resembling those of biomolecules e.g. proteins. The present critical review (citing 158 references) briefly describes dendrimer design, nomenclature and divergent/convergent dendrimer synthesis. The characteristic physicochemical features of dendrimers are highlighted, showing the effect of solvent pH and polarity on their spatial structure. The use of dendrimers in biological systems are reviewed, with emphasis on the biocompatibility of dendrimers, such as in vitro and in vivo cytotoxicity, as well as biopermeability, biostability and immunogenicity. The review deals with numerous applications of dendrimers as tools for efficient multivalent presentation of biological ligands in biospecific recognition, inhibition and targeting.
Dendrimers may be used as drugs for antibacterial and antiviral treatment

and have found use as antitumor agents. The review highlights the use of dendrimers as drug or gene delivery devices in e.g. anticancer therapy, and the design of different host-guest binding motifs directed towards medical applications is described.

Other specific examples are the use of dendrimers as 'glycocarriers' for the controlled multimeric presentation of biologically relevant carbohydrate moieties which are useful for targeting modified tissue in malignant diseases for diagnostic and therapeutic purposes. Finally, the use of specific types of dendrimers as scaffolds for presenting vaccine antigens, especially peptides, for use in vaccines is presented.

CATEGORY: CHEMISTRY, MULTIDISCIPLINARY

SUPPL. TERM PLUS: POLY(PROPYLENE IMINE) DENDRIMERS; NEUTRON-CAPTURE THERAPY; POLY(AMIDOAMINE) **PAMAM** DENDRIMERS; POLYESTER DENDRITIC SYSTEMS; ANTIBODY-BINDING PROPERTIES; SYNTHETIC PEPTIDE VACCINE; GENE-TRANSFER AGENTS; IN-VITRO; POLYAMIDOAMINE DENDRIMERS; **ANTISENSE OLIGONUCLEOTIDES**

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ANDRE S	2001	2	822	CHEMBIOCHEM
ASHWELL G	1974	41	99	ADV ENZYMOL
AUTUMN K	2000	405	681	NATURE
BAARS M W P L	2000	39	4262	ANGEW CHEM INT EDIT
BAEK M G	2001		257	CHEM COMMUN
BAEK M G	2002	10	11	BIOORGAN MED CHEM
BAENZIGER J U	1984	4	271	PLASMA PROTEINS STRU
BAENZIGER J U	1980	22	611	CELL
BALLAUFF M	2001	212	177	TOP CURR CHEM
BALOGH L	2001	1	18	NANO LETTERS
BARTH R F	1994	5	58	BIOCONJUGATE CHEM
BARTH R F	1994	21	139	MOL CHEM NEUROPATHOL
BATTAH S H	2001	12	980	BIOCONJUGATE CHEM
BAUSSANNE I	2000		1489	CHEM COMMUN
BAY S	1997	49	620	J PEPT RES
BEZOUSKA K	2002	90	269	REV MOL BIOTECH
BIELINSKA A	1996	24	2176	NUCLEIC ACIDS RES
BOAS U	2001	66	2136	J ORG CHEM
BOAS U	2002	3	433	CHEMBIOCHEM
BOAS U	2002			THESIS U COPENHAGEN
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BOURNE N	2000	44	2471	ANTIMICROB AGENTS CH
BOYD W C	1954	73	226	J IMMUNOL
BRAZEAU G A	1998	15	680	PHARMACEUT RES
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CHAI M H	2001	123	4670	J AM CHEM SOC
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CHEN W	2000	33	9169	MACROMOLECULES
CHEN C Z S	2002	23	3359	BIOMATERIALS
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CORBELL J B	2000	11	95	TETRAHEDRON-ASYMMETR
DASS C R	2002	54	3	J PHARM PHARMACOL
DEBACKER S	1998	102	5451	J PHYS CHEM A
DEBRABANDERVANDENBERG	1993	32	1308	ANGEW CHEM INT EDIT
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HERMANSON G T	1996			BIOCONJUGATE TECHNIQ
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JANSEN J F G	1995	210		ABSTR PAP AM CHEM SO
JANSEN J F G A	1996	102	27	MACROMOL SYMP
JANSEN J F G A	1995	114	225	RECL TRAV CHIM PAY B
JEVPRASESPHANT R	2003	252	263	INT J PHARM
KICHLER A	1998	6	201	J DRUG TARGET
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KONO K	1999	10	1115	BIOCONJUGATE CHEM
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LESCANEC R L	1990	23	2280	MACROMOLECULES
LINDHORST T K	2002	218	201	TOP CURR CHEM
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MOREIN B	1998	92	33	DEV BIOL STAND
MORENO C A	1999	18	89	VACCINE
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ROY R	1999	38	369	ANGEW CHEM INT EDIT
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SADLER K	2002	90	195	REV MOL BIOTECHNOL
SAKHAROV D V	2001	21	943	ARTERIOSCL THROM VAS
SHAH D S	2000	208	41	INT J PHARM
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SUPATTAPONE S	1999	96	14529	P NATL ACAD SCI USA
TAJAROBI F	2001	215	263	INT J PHARM
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TOMALIA D A	1985	17	117	POLYM J
TOYOKUNI T	1994	2	1119	BIOORGAN MED CHEM
TUCHSCHERER G	1993	49	3559	TETRAHEDRON
TURNBULL W B	2002	90	231	REV MOL BIOTECHNOL
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VEPREK P	1999	5	203	J PEPT SCI
VRASIDAS I	2001		4685	EUR J ORG CHEM DEC
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WALLIMANN P	1996	79	779	HELV CHIM ACTA
WANG R B	1995	154	2784	J IMMUNOL
WEENER J W	2000			THESIS EINDHOVEN U T
WEIS W I	1996	65	441	ANNU REV BIOCHEM
WIMMER N	2002	12	2635	BIOORG MED CHEM LETT
WITVROUW M	2000	43	778	J MED CHEM
WITVROUW M	2000	58	1100	MOL PHARMACOL
WIWATTANAPATAPEE R	2000	17	991	PHARMACEUT RES
WOLLER E K	2002	4	7	ORG LETT
WOOLEY K L	1993	115	11496	J AM CHEM SOC
YOO H	1999	16	1799	PHARMACEUT RES
YOO H	2000	28	4225	NUCLEIC ACIDS RES
ZENG F W	1997	97	1681	CHEM REV
ZHUO R X	1999	57	249	J CONTROL RELEASE
ZIMMERMAN S C	2002	418	399	NATURE
ZINSELMEYER B H	2002	19	960	PHARMACEUT RES

STN Patent No. (RPN)	Year (RPY)	Ref. Inventor/Assignee (RIN)	Type	Ref. Patent No. (RPN)
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US 5795582	1998	WRIGHT D C		US 005795582
US 4410688	1983	DENKEWALTER R G		US 4410688

L16 ANSWER 16 OF 41 MEDLINE on STN
ACCESSION NUMBER: 2003511812 MEDLINE

DOCUMENT NUMBER: PubMed ID: 14588003
TITLE: Enzyme-amplified electrochemical detection of DNA using electrocatalysis of ferrocenyl-tethered dendrimer.
AUTHOR: Kim Eunkyung; Kim Kyuwon; Yang Haesik; Kim Youn Tae; Kwak Juhyoun
CORPORATE SOURCE: Department of Chemistry, Korea Advanced Institute of Science and Technology (KAIST), Daejeon 305-701, Republic of Korea.
SOURCE: Analytical chemistry, (2003 Nov 1) 75 (21) 5665-72.
Journal code: 0370536. ISSN: 0003-2700.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200406
ENTRY DATE: Entered STN: 20031101
Last Updated on STN: 20040609
Entered Medline: 20040608

ABSTRACT:
We have developed a sandwich-type enzyme-linked DNA sensor as a new electrochemical method to detect DNA hybridization. A partially ferrocenyl-tethered poly(amidoamine) dendrimer (Fc-D) was used as an electrocatalyst to enhance the electronic signals of DNA detection as well as a building block to immobilize capture probes. Fc-D was immobilized on a carboxylic acid-terminated self-assembled monolayer (SAM) by covalent coupling of unreacted amine in Fc-D to the acid. Thiolated capture probe was attached to the remaining amine groups of Fc-D on the SAM via a bifunctional linker. The target DNA was hybridized with the capture probe, and an extension in the DNA of the target was then hybridized with a biotinylated detection probe. Avidin-conjugated alkaline phosphatase was bound to the detection probe and allowed to generate the electroactive label, p-aminophenol, from p-aminophenyl phosphate enzymatically. p-Aminophenol diffuses into the Fc-D layer and is then electrocatalytically oxidized by the electronic mediation of the immobilized Fc-D, which leads to a great enhancement in signal. Consequently, the amount of hybridized target can be estimated using the intensity of electrocatalytic current. This DNA sensor exhibits a detection limit of 20 fmol. Our method was also successfully applied to the sequence-selective discrimination between perfectly matched and single-base mismatched target **oligonucleotides**.

CONTROLLED TERM:
Alkaline Phosphatase: ME, metabolism
Aminophenols: CH, chemistry
Aminophenols: ME, metabolism
Aniline Compounds: ME, metabolism
Avidin: CH, chemistry
Biosensing Techniques: IS, instrumentation
*Biosensing Techniques: MT, methods
Biotinylation: MT, methods
Calibration
Catalysis
Cross-Linking Reagents: CH, chemistry
*DNA: AN, analysis
DNA Probes: CS, chemical synthesis
Electrochemistry
Enzyme Stability
*Ferrous Compounds: CH, chemistry
Gold: CH, chemistry
*Nucleic Acid Hybridization: MT, methods
Organophosphorus Compounds: ME, metabolism
Oxidation-Reduction
Polyamines: CH, chemistry
Research Support, Non-U.S. Gov't
Sensitivity and Specificity
Spectroscopy, Fourier Transform Infrared

CAS REGISTRY NO.: 102-54-5 (ferrocene); 123-30-8 (4-aminophenol); 1405-69-2 (Avidin); 72962-65-3 (4-aminophenylphosphate); 7440-57-5 (Gold); 9007-49-2 (DNA)
CHEMICAL NAME: 0 (Aminophenols); 0 (Aniline Compounds); 0 (Cross-Linking Reagents); 0 (DNA Probes); 0 (Ferrous Compounds); 0 (Organophosphorus Compounds); 0 (**PAMAM** Starburst); 0 (Polyamines); EC 3.1.3.1 (Alkaline Phosphatase)

L16 ANSWER 17 OF 41 SCISEARCH COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 2003:856012 SCISEARCH
THE GENUINE ARTICLE: 725NB
TITLE: Radiolabeling of avidin with very high specific activity for internal radiation therapy of intraperitoneally disseminated tumors
AUTHOR: Mamede M; Saga T (Reprint); Kobayashi H; Ishimori T; Higashi T; Sato N; Brechbiel M W; Konishi J
CORPORATE SOURCE: Kyoto Univ, Grad Sch Med, Dept Nucl Med & Diagnost Imaging, Sakyo Ku, 54 Kawahara Cho, Kyoto 6068507, Japan (Reprint); Kyoto Univ, Grad Sch Med, Dept Nucl Med & Diagnost Imaging, Sakyo Ku, Kyoto 6068507, Japan; NCI, NIH, Bethesda, MD 20892 USA
COUNTRY OF AUTHOR: Japan; USA
SOURCE: CLINICAL CANCER RESEARCH, (1 SEP 2003) Vol. 9, No. 10, Part 1, pp. 3756-3762.
ISSN: 1078-0432.
PUBLISHER: AMER ASSOC CANCER RESEARCH, 615 CHESTNUT ST, 17TH FLOOR, PHILADELPHIA, PA 19106-4404 USA.
DOCUMENT TYPE: Article; Journal
LANGUAGE: English
REFERENCE COUNT: 43
ENTRY DATE: Entered STN: 17 Oct 2003
Last Updated on STN: 17 Oct 2003

ABSTRACT:
Purpose: For the effective internal radiation therapy of i.p. disseminated tumors, we developed avidin (Av)-dendrimer-chelate complex, which can be labeled with indium-111, emitting Auger and conversion electrons, with very high specific activity, and we studied its internalization, biodistribution, and therapeutic effect in nude mice with i.p. tumors.

Experimental Design: Generation 4 dendrimer (G4) was biotinylated and conjugated with 52 1B4M chelates. In-111-G4-bt was mixed with Av to form In-111-G4-Av complex. In-111-G4-Av was incubated with ovarian cancer cells (SHIN-3), and the rate of internalization of the radiolabel into SHIN-3 cells was followed. In-111-G4-Av was i.p. injected into nude mice that had i.p. disseminated SHIN-3 tumors, and the biodistribution was determined. Nude mice bearing i.p. disseminated tumors received i.p. injection of In-111-G4-Av (9.25 or 18.5 MBq x 2, with a 1-week interval) and were followed for the formation of malignant ascites.

Results: Av could be labeled with In-111 with specific activity as high as 37 GBq/mg. More than 75% of the radioactivity was internalized 24 It after binding to cancer cells. In-111-G4-Av accumulated rapidly and highly in the i.p. tumors (128.20% injected dose/gram of tissue at 2 h, 114.91% injected dose/gram of tissue at 24 h for unsaturated compound) with high tumor:background ratios. Treatment with a high dose of In-111-G4-bt-Av was tolerable and showed dose-dependent therapeutic effect.

Conclusions: G4-Av complex, which could be labeled with In-111 with very high specific activity and showed efficient internalization into cancer cells and high accumulation to i.p. tumors, appears to be suitable for the internal radiation therapy of i.p. disseminated tumors using metallic radionuclides emitting Auger and conversion electrons.
CATEGORY: ONCOLOGY

SUPPL. TERM PLUS: ELECTRON-EMITTING RADIONUCLIDES; NEUTRON-CAPTURE THERAPY; GROUP NO 6; MONOCLONAL-ANTIBODY; AUGER-ELECTRON; **ANTISENSE OLIGONUCLEOTIDES**; STARBURST DENDRIMERS; **PAMAM** DENDRIMERS; CELLS-INVITRO; COLON-CANCER

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BEHR T M	2000	27	753	EUR J NUCL MED
BEHR T M	1998	76	738	INT J CANCER
BIELINSKA A	1996	24	2176	NUCLEIC ACIDS RES
CHINOL M	1998	78	189	BRIT J CANCER
CHU C S	1999	54	323	OBSTET GYNECOL SURV
DAYA D	1991	8	277	SEMIN DIAGN PATHOL
DELONG R	1997	86	762	J PHARM SCI
FRECHET J M J	1994	263	1710	SCIENCE
GABIUS H J	1986	6	573	ANTICANCER RES
GREEN N M	1975	29	85	ADV PROTEIN CHEM
GRIFFITHS G L	1999	81	985	INT J CANCER
HILLER Y	1987	248	167	BIOCHEM J
HOWELL R W	1992	19	1371	MED PHYS
HUMM J L	1994	21	1901	MED PHYS
HYAMS D M	1987	122	1333	ARCH SURG-CHICAGO
KOBAYASHI H	2001	12	587	BIOCONJUGATE CHEM
KOBAYASHI H	2001	14	705	J MAGN RESON IMAGING
KOBAYASHI H	1994	35	1677	J NUCL MED
KOBAYASHI H	2000	27	1334	EUR J NUCL MED
KOBAYASHI H	1999	10	103	BIOCONJUGATE CHEM
KUKOWSKALATALLO J F	1996	93	4897	P NATL ACAD SCI USA
LOTAN R	1988	551	385	ANN NY ACAD SCI
MCLEAN J R N	1989	67	661	BIOCHEM CELL BIOL
MCLEAN J R	1989	119	205	RADIAT RES
MEREDITH R F	1995	36	2229	J NUCL MED
MONSIGNY M	1988	551	399	ANN NY ACAD SCI
MUTO M G	1992	45	265	GYNECOL ONCOL
PAGANELLI G	1994	35	1970	J NUCL MED
PAGANELLI G	1991	51	5960	CANCER RES
RAZ A	1987	39	353	INT J CANCER
ROSENBLUM M G	1999	5	953	CLIN CANCER RES
SAGA T	1999	35	1281	EUR J CANCER
SAHU S K	1995	141	193	RADIAT RES
SATO N	2001	7	3606	CLIN CANCER RES
SUGARBAKER P H	2001	31	573	JPN J CLIN ONCOL
TOMALIA D A	1990	29	138	ANGEW CHEM INT EDIT
TOWNSEND R	1981	194	209	BIOCHEM J
WU C C	1994	4	449	BIOORG MED CHEM LETT
YAO Z S	1999	40	479	J NUCL MED
YAO Z S	1998	90	25	J NATL CANCER I
YOO H	1999	16	1799	PHARMACEUT RES
ZHANG M L	1997	24	61	NUCL MED BIOL

L16 ANSWER 18 OF 41 SCISEARCH COPYRIGHT (c) 2005 The Thomson Corporation on STN

ACCESSION NUMBER: 2003:529929 SCISEARCH

THE GENUINE ARTICLE: 691XV

TITLE: The potential of **antisense** as a CNS therapeutic

AUTHOR: Godfray J (Reprint); Estibeiro P

CORPORATE SOURCE: ExpressOn Biosyst Ltd, Roslin BioCtr, Logan Bldg, Roslin EH25 9TT, Midlothian, Scotland (Reprint); ExpressOn Biosyst Ltd, Roslin BioCtr, Roslin EH25 9TT, Midlothian,

Scotland
COUNTRY OF AUTHOR: Scotland
SOURCE: EXPERT OPINION ON THERAPEUTIC TARGETS, (JUN 2003) Vol. 7, No. 3, pp. 363-376.
ISSN: 1472-8222.
PUBLISHER: ASHLEY PUBLICATIONS LTD, UNITEC HOUSE, 3RD FL, 2 ALBERT PLACE, FINCHLEY CENTRAL, LONDON N3 1QB, ENGLAND.
DOCUMENT TYPE: General Review; Journal
LANGUAGE: English
REFERENCE COUNT: 78
ENTRY DATE: Entered STN: 13 Jul 2003
Last Updated on STN: 13 Jul 2003

ABSTRACT:

Antisense offers a precise and specific means of knocking down expression of a target gene, and is a major focus of research in neuroscience and other areas. It has application as a tool in gene function and target validation studies and is emerging as a therapeutic technology in its own right. it has become increasingly obvious, however, that there are a number of hurdles to overcome before **antisense** can be used effectively in the CNS, most notably finding suitable nucleic acid chemistries and an effective delivery vehicle to transport **antisense oligonucleotides** (AS-ODNs) across the blood-brain barrier (BBB) to their site of action. Despite these problems, a number of potential applications of AS-ODNs in CN5 therapeutics have been validated in vitro and, in some cases, in vivo. Here the authors outline available nucleic acid chemistries and review progress in the development of non-invasive delivery vehicles that may be applicable to CNS therapeutics. Further to this, they discuss a number of experimental applications of AS-ODNs to CNS research and speculate on the development of ***antisense*** techniques to treat CNS disease.

CATEGORY: PHARMACOLOGY & PHARMACY
SUPPLEMENTARY TERM: **antisense**; brain; CNS; delivery; fianctional genomics; **oligonucleotide** (ODN); target validation; therapeutic
SUPPL. TERM PLUS: BLOOD-BRAIN-BARRIER; RNA SECONDARY STRUCTURE; LOCKED NUCLEIC-ACIDS; GENE-EXPRESSION; **OLIGONUCLEOTIDE** ARRAYS; DRUG-DELIVERY; IN-VITRO; MORPHINE-TOLERANCE; **PAMAM** DENDRIMERS; DOWN-REGULATION

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BANKS W A	2001	297	1113	J PHARMACOL EXP THER
BELTINGER C	1995	95	1814	J CLIN INVEST
BIELINSKA A	1996	24	2176	NUCLEIC ACIDS RES
BOHN L M	2000	408	720	NATURE
BRAASCH D A	2002	41	4503	BIOCHEMISTRY-US
CHIANG M Y	1991	266	18162	J BIOL CHEM
CLARK C L	1997	25	4098	NUCLEIC ACIDS RES
CLEEK R L	1997	35	525	J BIOMED MATER RES
CROOKE S T	1999	1489	31	BBA-GENE STRUCT EXPR
DELONG R	1997	86	762	J PHARM SCI
DING Y	2001	29	1034	NUCLEIC ACIDS RES
DOVE A	2002	20	121	NAT BIOTECHNOL
EPA W R	2000	10	469	ANTISENSE NUCLEIC A
ESTIBEIRO P	2001	24	S56	TRENDS NEUROSCI S
FISHER R S	2002	16	579	CNS DRUGS
FRANTSEVA M V	2002	22	453	J CEREBR BLOOD F MET
FRIEDMAN K J	1999	274	36193	J BIOL CHEM
GEARY R S	2001	296	890	J PHARMACOL EXP THER
GROOTHUIS D R	2000	2	45	NEURO-ONCOLOGY

GUM R J	2003	52	21	DIABETES
HALFORD J C G	2001	2	353	CURR DRUG TARGETS
HANNON G J	2002	418	244	NATURE
HEISLER L K	2002	297	609	SCIENCE
HUGHES M D	2001	6	303	DRUG DISCOV TODAY
JAIN K K	2001	2	143	PHARMACOGENOMICS
KECK M E	2001	22	835	PEPTIDES
KHAN A	2000	8	319	J DRUG TARGET
KHATSENKO O	2000	10	35	ANTISENSE NUCLEIC A
KOPPELHUS U	2002	12	51	ANTISENSE NUCLEIC A
KRICHEVSKY A M	2002	99	11926	P NATL ACAD SCI USA
KURRECK J	2002	30	1911	NUCLEIC ACIDS RES
LAKKARAJU A	2001	276	32000	J BIOL CHEM
LEARY D	2000	21	12	AM BOOK REV
MACDONALD T J	2001	21	3785	ANTICANCER RES
MANOHARAN M	2002	12	103	ANTISENSE NUCLEIC A
MCMAHON B M	2002	19	71	J MOL NEUROSCI
MCMAHON B M	2001	904	345	BRAIN RES
MERCATANTE D	2001	1	211	CURR CANC DRUG TARGE
MERCATANTE D R	2002	1597	126	BIOCHIM BIOPHYS ACTA
MILLER G	2002	297	1116	SCIENCE
MILNER N	1997	15	537	NAT BIOTECHNOL
MIR K U	1999	17	788	NAT BIOTECHNOL
MORITA K	2002	12	73	BIOORG MED CHEM LETT
MUKAI S	2000	60	4461	CANCER RES
NORMANDSDIQUI N	1998	163	63	INT J PHARM
PAGE D				UNPUB RECENT RES DEV
PARDRIDGE W M	2001	6	1	DRUG DISCOV TODAY
PARDRIDGE W M	2001	87	97	JPN J PHARMACOL
PARDRIDGE W M	2002	1	131	NAT REV DRUG DISCOV
PARDRIDGE W M	2002	7	5	DRUG DISCOV TODAY
PRZEWLOCKA B	2002	325	107	NEUROSCI LETT
READ T A	2002	3	257	CURR PHARM BIOTECHNO
ROBINSON E S J	1997	11	259	J PSYCHOPHARMACOL
ROH H	2000	60	560	CANCER RES
SAZANI P	2001	29	3965	NUCLEIC ACIDS RES
SHCHEPINOV M S	1997	25	1155	NUCLEIC ACIDS RES
SHI N Y	2000	97	7567	P NATL ACAD SCI USA
SHI N Y	2000	97	14709	P NATL ACAD SCI USA
SHOICHET M S	2000	42	81	ADV DRUG DELIVER REV
SKUTELLA T	1994	14	579	CELL MOL NEUROBIOL
SLAUGENHAUPT S A	2001	68	598	AM J HUM GENET
SUMMERTON J	1997	7	187	ANTISENSE NUCLEIC A
SUN H B	2002	104	246	MOL BRAIN RES
TANAKA S	2002	50	965	RINSHO BYORI
TOULME J J	2001	19	17	NAT BIOTECHNOL
TYLER B M	1999	96	7053	P NATL ACAD SCI USA
VANHUIJSDUIJNEN R H	2002	7	1013	DRUG DISCOV TODAY
VICKERS T A	2000	28	1340	NUCLEIC ACIDS RES
WAHLESTEDT C	2000	97	5633	P NATL ACAD SCI USA
WAKUTANI Y	2002	277	232	ANN NY ACAD SCI
YAZAKI T	1996	50	236	MOL PHARMACOL
YOO H	2000	28	4225	NUCLEIC ACIDS RES
YUE S	2001	83	145	ZHONGHUA YI XUE ZA Z
ZHANG Y	2002	4	183	J GENE MED
ZHANG Y	2002	6	67	MOL THER
ZINKER B A	2002	99	11357	P NATL ACAD SCI USA

L16 ANSWER 19 OF 41 SCISEARCH COPYRIGHT (c) 2005 The Thomson Corporation on STN

ACCESSION NUMBER: 2004:266191 SCISEARCH

THE GENUINE ARTICLE: 780QG

TITLE: Water-soluble polycationic dendrimers with a phosphoramidothioate backbone: Preliminary studies of cytotoxicity and **oligonucleotide**/plasmid delivery in human cell culture

AUTHOR: Maszewska M; Leclaire J; Cieslak M; Nawrot B; Okruszek A (Reprint); Caminade A M; Majoral J P

CORPORATE SOURCE: Polish Acad Sci, Ctr Mol & Macromol Studies, Dept Bioorgan Chem, Sienkiewicza 112, PL-90363 Lodz, Poland (Reprint); Polish Acad Sci, Ctr Mol & Macromol Studies, Dept Bioorgan Chem, PL-90363 Lodz, Poland; CNRS, Chim Coordinat Lab, F-31077 Toulouse 4, France

COUNTRY OF AUTHOR: Poland; France

SOURCE: OLIGONUCLEOTIDES, (2003) Vol. 13, No. 4, pp. 193-205. ISSN: 1545-4576.

PUBLISHER: MARY ANN LIEBERT INC PUBL, 2 MADISON AVENUE, LARCHMONT, NY 10538 USA.

DOCUMENT TYPE: Article; Journal

LANGUAGE: English

REFERENCE COUNT: 28

ENTRY DATE: Entered STN: 26 Mar 2004
Last Updated on STN: 26 Mar 2004

ABSTRACT:

A series of water-soluble polycationic dendrimers with a phosphoramidothioate backbone (P-dendrimers) was studied in human cell culture. Preliminary studies have shown that P-dendrimers of series 1 and 2, possessing N,N-diethyl-ethylenediamine hydrochloride functions at the surface, show rather moderate cytotoxicity toward HeLa, HEK 293, and HUVEC cells in a standard MTT assay in serum-containing medium, generally lower than lipofectin. The experiments of cellular uptake have shown the necessity for the presence of serum for transfection with P-dendrimers of series 1 and 2. These compounds efficiently delivered fluorescein-labeled oligodeoxyribonucleotide into HeLa cells in serum-containing medium, but they failed to do so in HUVEC cell culture. The dendrimers were found to be successful mediators of transfection of the HeLa cells with a DNA plasmid containing the functional gene of enhanced green fluorescent protein (EGFP).

CATEGORY: BIOCHEMISTRY & MOLECULAR BIOLOGY; BIOTECHNOLOGY & APPLIED MICROBIOLOGY

SUPPL. TERM PLUS: PHOSPHORUS-CONTAINING DENDRIMERS; **ANTISENSE OLIGONUCLEOTIDES**; **PAMAM** DENDRIMERS; POLYAMIDOAMINE DENDRIMERS; STARBURST DENDRIMERS; SURFACE-CHEMISTRY; GENE-TRANSFER; COMPLEXES; EXPRESSION; GROWTH

REFERENCE(S):

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	ARN PG (RPG)	Referenced Work (RWK)
AGRAWAL S	2000	6	72	MOL MED TODAY
ALAHARI S K	1998	286	419	J PHARMACOL EXP THER
AXEL D I	2000	37	221	J VASC RES
BIELINSKA A	1996	24	2176	NUCLEIC ACIDS RES
BOUSSIF O	1996	3	1074	GENE THER
CIESLAK M	2002	277	6779	J BIOL CHEM
DASS C R	2002	54	3	J PHARM PHARMACOL
DELONG R	1997	86	762	J PHARM SCI
GALLIOT C	1997	277	1981	SCIENCE
GLEAVES C A	1990	28	171	J VIROL METHODS
HAENSLER J	1993	4	372	BIOCONJUGATE CHEM
HANSEN M B	1989	119	203	J IMMUNOL METHODS
HELIN V	1999	58	95	BIOCHEM PHARMACOL
JAFFE E A	1973	52	2745	J CLIN INVEST
KOLTOVER I	1998	281	78	SCIENCE
KUKOWSKALATALLO J F	1996	93	4897	P NATL ACAD SCI USA

LAUNAY N	1994	33	1589	ANGEW CHEM INT EDIT
LOUP C	1999	5	3644	CHEM-EUR J
POXON S W	1996	3	255	DRUG DELIV
RAJUR S B	1997	8	935	BIOCONJUGATE CHEM
SATO N	2001	7	3606	CLIN CANCER RES
SLANY M	1995	117	9764	J AM CHEM SOC
TANG M X	1996	7	703	BIOCONJUGATE CHEM
TOMALIA D A	1990	29	138	ANGEW CHEM INT EDIT
WAGNER R W	1994	372	333	NATURE
WANG Y O	2000	2	602	MOL THER
YOO H	1999	16	1799	PHARMACEUT RES
YOO H	2000	28	4225	NUCLEIC ACIDS RES

L16 ANSWER 20 OF 41 EMBASE COPYRIGHT 2005 ELSEVIER INC. ALL RIGHTS RESERVED.
on STN DUPLICATE 3

ACCESSION NUMBER: 2004087708 EMBASE
TITLE: Interactions between **PAMAM** dendrimers and bovine serum albumin.
AUTHOR: Klajnert B.; Stanislawska L.; Bryszewska M.; Palecz B.
CORPORATE SOURCE: M. Bryszewska, Department of General Biophysics, Univ. of Lodz, ul. Banacha 12/16, Lodz 90-237, Poland. marbrys@biol.uni.lodz.pl
SOURCE: Biochimica et Biophysica Acta - Proteins and Proteomics, (30 May 2003) Vol. 1648, No. 1-2, pp. 115-126.
Refs: 34
ISSN: 1570-9639 CODEN: BBAPBW
COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 029 Clinical Biochemistry
LANGUAGE: English
SUMMARY LANGUAGE: English
ENTRY DATE: Entered STN: 20040311
Last Updated on STN: 20040311

ABSTRACT: Dendrimers are a new class of polymeric materials. They are globular, highly branched, monodisperse macromolecules. Due to their structure, dendrimers promise to be new, effective biomedical materials as ***oligonucleotide*** transfection agents and drug carriers. More information about biological properties of dendrimers is crucial for further investigation of dendrimers in therapeutic applications. In this study the mechanism of interactions between polyamidoamine (**PAMAM**) dendrimers and bovine serum albumin (BSA) was examined. **PAMAM** dendrimers are based on an ethylenediamine core and branched units are constructed from both methyl acrylate and ethylenediamine. We used three types of **PAMAM** dendrimers with different surface groups (-COOH, -NH(2), -OH). As BSA contains two tryptophan residues we were able to evaluate dendrimers influence on protein molecular conformation by measuring the changes in the fluorescence of BSA in the presence of dendrimers. Additionally experiments with a fluorescent probe 1-anilinonaphthalene-8-sulfonic acid (ANS) were carried out. The differential scanning calorimetry (DSC) was chosen to investigate impact on protein thermal stability upon the dendrimers. Our experiments showed that the extent of the interactions between BSA and dendrimers strongly depends on their surface groups and is the biggest for amino-terminated dendrimers.

CONTROLLED TERM: Medical Descriptors:
*molecular dynamics
molecular interaction
molecular mechanics
albumin blood level
cattle
experimental test
intermethod comparison

surface property
protein analysis
fluorescence
conformation
differential scanning calorimetry
thermostability
nonhuman
controlled study
article
priority journal
Drug Descriptors:
*polyamide
*amine
*albumin
*dendrimer
ethylenediamine
acrylic acid methyl ester
tryptophan
fluorescent dye
8 anilino 1 naphthalenesulfonic acid
CAS REGISTRY NO.: (polyamide) 63428-83-1; (ethylenediamine) 107-15-3; (acrylic acid methyl ester) 96-33-3; (tryptophan) 6912-86-3, 73-22-3; (8 anilino 1 naphthalenesulfonic acid) 82-76-8

L16 ANSWER 21 OF 41 MEDLINE on STN
ACCESSION NUMBER: 2003372862 MEDLINE
DOCUMENT NUMBER: PubMed ID: 12907739
TITLE: Impact of surface chemistry and blocking strategies on DNA microarrays.
AUTHOR: Taylor Scott; Smith Stephanie; Windle Brad; Guiseppi-Elie Anthony
CORPORATE SOURCE: Center for Bioelectronics, Biosensors and Biochips (C3B), Virginia Commonwealth University, PO Box 843038, 601 West Main Street, Richmond, VA 23284-3038, USA.
SOURCE: Nucleic acids research, (2003 Aug 15) 31 (16) e87. Journal code: 0411011. ISSN: 1362-4962.
PUB. COUNTRY: England: United Kingdom
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200401
ENTRY DATE: Entered STN: 20030809
Last Updated on STN: 20040130
Entered Medline: 20040129

ABSTRACT:
The surfaces and immobilization chemistries of DNA microarrays are the foundation for high quality gene expression data. Four surface modification chemistries, poly-L-lysine (PLL), 3-glycidoxypropyltrimethoxysilane (GPS), DAB-AM-poly(propyleminime hexadecaamine) dendrimer (DAB) and 3-aminopropyltrimethoxysilane (APS), were evaluated using cDNA and ***oligonucleotide*** sub-arrays. Two un-silanized glass surfaces, RCA-cleaned and immersed in Tris-EDTA buffer were also studied. DNA on amine-modified surfaces was fixed by UV (90 mJ/cm(2)), while DNA on GPS-modified surfaces was immobilized by covalent coupling. Arrays were blocked with either succinic anhydride (SA), bovine serum albumin (BSA) or left unblocked prior to hybridization with labeled PCR product. Quality factors evaluated were surface affinity for cDNA versus **oligonucleotides**, spot and background intensity, spotting concentration and blocking chemistry. Contact angle measurements and atomic force microscopy were preformed to characterize surface wettability and morphology. The GPS surface exhibited the lowest background intensity regardless of blocking method. Blocking the arrays

did not affect raw spot intensity, but affected background intensity on amine surfaces, BSA blocking being the lowest. **Oligonucleotides** and cDNA on unblocked GPS-modified slides gave the best signal (spot-to-background intensity ratio). Under the conditions evaluated, the unblocked GPS surface along with amine covalent coupling was the most appropriate for both cDNA and ***oligonucleotide*** microarrays.

CONTROLLED TERM: Check Tags: Comparative Study
*DNA, Complementary: CH, chemistry
DNA, Complementary: GE, genetics
Glyceraldehyde-3-Phosphate Dehydrogenases: GE, genetics
Microscopy, Atomic Force
Molecular Structure
***Oligonucleotide Array Sequence Analysis: MT, methods**
Oligonucleotide Probes: CH, chemistry
Oligonucleotide Probes: GE, genetics
Polyamines: CH, chemistry
Polylysine: CH, chemistry
Propylamines: CH, chemistry
Reproducibility of Results
Research Support, Non-U.S. Gov't
Silanes: CH, chemistry
Surface Properties

CAS REGISTRY NO.: 13822-56-5 (3-aminopropyltrimethoxysilane); 25104-18-1 (Polylysine)

CHEMICAL NAME: 0 (3-glycidoxypropyltrimethoxysilane); 0 (DNA, Complementary); 0 (**Oligonucleotide** Probes); 0 (**PAMAM** Starburst); 0 (Polyamines); 0 (Propylamines); 0 (Silanes); EC 1.2.1.- (Glyceraldehyde-3-Phosphate Dehydrogenases)

L16 ANSWER 22 OF 41 EMBASE COPYRIGHT 2005 ELSEVIER INC. ALL RIGHTS RESERVED.
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ACCESSION NUMBER: 2005101911 EMBASE

TITLE: Optimisation of dendrimer-mediated gene transfer by anionic oligomers.

AUTHOR: Maksimenko A.V.; Mandrouguine V.; Gottikh M.B.; Bertrand J.-R.; Majoral J.-P.; Malvy C.

CORPORATE SOURCE: A.V. Maksimenko, CNRS UMR 8121, Institut Gustave Roussy, 39 rue Camille Desmoulins, 94805 Villejuif Cedex, France. andremak@igr.fr

SOURCE: Journal of Gene Medicine, (2003) Vol. 5, No. 1, pp. 61-71.
Refs: 25
ISSN: 1099-498X CODEN: JGMEFG

COUNTRY: United Kingdom

DOCUMENT TYPE: Journal; Article

FILE SEGMENT: 022 Human Genetics
037 Drug Literature Index
039 Pharmacy

LANGUAGE: English

SUMMARY LANGUAGE: English

ENTRY DATE: Entered STN: 20050317
Last Updated on STN: 20050317

ABSTRACT: Background: The application of synthetic vectors for gene transfer has potential advantages over virus-based systems. Their use, however, is limited since they generally lack the efficiency of gene transfer achieved with recombinant viral vectors such as adenovirus. Polyamidoamine (**PAMAM**) and phosphorus-containing dendrimers (P-dendrimers) are specific polymers with a defined spherical structure. They bind to DNA through electrostatic interactions thus forming complexes that efficiently transfect cells in vitro. Methods and results: The influence of anionic oligomers (***oligonucleotides*** , dextran sulfate) on dendrimer-mediated polyfection of

cultured cells has been studied. Anionic oligomers have been found to increase significantly the capacity of the **PAMAM** and P-dendrimers for DNA delivery into cells when they were mixed with plasmid DNA before addition of dendrimers. The efficiency of the DNA/dendrimer penetration depends on the size, structure and charge of anionic oligomers. Conclusions: Our results represent an important step towards the optimisation of gene transfer mediated by two types of dendrimers. The use of anionic oligomers improves the efficiency of gene expression within cells. As a consequence, a very efficient cell polyfection can be achieved with a lower plasmid quantity for the ***PAMAM*** dendrimer greatly increasing the gene expression level for P-dendrimers.

CONTROLLED TERM: Medical Descriptors:
*nonviral gene delivery system
process optimization
genetic transfection
cell culture
penetrance
molecular size
chemical structure
electricity
gene expression
plasmid vector
human
nonhuman
mouse
controlled study
human cell
animal cell
article
priority journal
Drug Descriptors:
dendrimer
oligomer
oligonucleotide
dextran sulfate
polyamide
plasmid DNA
beta galactosidase: PR, pharmaceutics

CAS REGISTRY NO.: (dextran sulfate) 9011-18-1, 9042-14-2; (polyamide) 63428-83-1

L16 ANSWER 23 OF 41 MEDLINE on STN
ACCESSION NUMBER: 2002064592 MEDLINE
DOCUMENT NUMBER: PubMed ID: 11788736
TITLE: DNA microarrays with **PAMAM** dendritic linker systems.
AUTHOR: Benters Rudiger; Niemeyer Christof M; Drutschmann Denja; Blohm Dietmar; Wohrle Dieter
CORPORATE SOURCE: Chimera Biotec GmbH, Schwachhauser Heerstrasse 30A, 28209 Bremen, Germany.
SOURCE: Nucleic acids research, (2002 Jan 15) 30 (2) E10. Journal code: 0411011. ISSN: 1362-4962.
PUB. COUNTRY: England: United Kingdom
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200202
ENTRY DATE: Entered STN: 20020125
Last Updated on STN: 20020205
Entered Medline: 20020204

ABSTRACT:

The DNA microarray-based analysis of single nucleotide polymorphisms (SNPs) is important for the correlation of genetic variations and individual phenotypes, and for locating disease-causing genes. To facilitate the development of surfaces suitable for immobilization of **oligonucleotides**, we report here a novel method for the surface immobilization of DNA using pre-fabricated polyamidoamine (**PAMAM**) starburst dendrimers as mediator moieties. Dendrimers containing 64 primary amino groups in their outer sphere are covalently attached to silylated glass supports and, subsequently, the dendritic macromolecules are modified with glutaric anhydride and activated with N-hydroxysuccinimide. As a result of the dendritic **PAMAM** linker system the surfaces reveal both a very high immobilization efficiency for amino-modified DNA-oligomers, and also a remarkable high stability during repeated regeneration and re-using cycles. The performance of dendrimer-based DNA microarrays in the discrimination of SNPs is demonstrated.

CONTROLLED TERM: Anhydrides: CH, chemistry
Base Pair Mismatch: GE, genetics
Conservation of Natural Resources
*DNA: GE, genetics
DNA: ME, metabolism
DNA Mutational Analysis: MT, methods
DNA Probes: GE, genetics
DNA Probes: ME, metabolism
Fluorescence
Glass: CH, chemistry
Glutarates: CH, chemistry
Nucleic Acid Hybridization
***Oligonucleotide Array Sequence Analysis: MT, methods**
*Polyamines: CH, chemistry
Polyamines: ME, metabolism
*Polymorphism, Single Nucleotide: GE, genetics
Research Support, Non-U.S. Gov't
Sensitivity and Specificity
Succinimides: CH, chemistry

CAS REGISTRY NO.: 108-55-4 (glutaric anhydride); 6066-82-6 (N-hydroxysuccinimide); 9007-49-2 (DNA)

CHEMICAL NAME: 0 (Anhydrides); 0 (DNA Probes); 0 (Glass); 0 (Glutarates); 0 (**PAMAM** Starburst); 0 (Polyamines); 0 (Succinimides)

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ACCESSION NUMBER: 2002:115377 SCISEARCH
THE GENUINE ARTICLE: 516JY
TITLE: DNA microarrays with **PAMAM** dendritic linker systems
AUTHOR: Benters R; Niemeyer C M (Reprint); Drutschmann D; Blohm D; Wohrle D
CORPORATE SOURCE: Univ Bremen, FB UFT 2, POB 330440, D-28334 Bremen, Germany (Reprint); Univ Bremen, FB UFT 2, D-28334 Bremen, Germany; Chimera Biotec GmbH, D-28209 Bremen, Germany; Univ Bremen, Inst Organ & Macromol Chem, D-28334 Bremen, Germany
COUNTRY OF AUTHOR: Germany
SOURCE: NUCLEIC ACIDS RESEARCH, (15 JAN 2002) Vol. 30, No. 2, arn. e10.
ISSN: 0305-1048.
PUBLISHER: OXFORD UNIV PRESS, GREAT CLARENDON ST, OXFORD OX2 6DP, ENGLAND.
DOCUMENT TYPE: Article; Journal
LANGUAGE: English
REFERENCE COUNT: 24
ENTRY DATE: Entered STN: 15 Feb 2002

Last Updated on STN: 15 Feb 2002

ABSTRACT:
The DNA microarray-based analysis of single nucleotide polymorphisms (SNPs) is Important for the correlation of genetic variations and individual phenotypes, and for locating disease-causing genes. To facilitate the development of surfaces suitable for immobilization of **oligonucleotides**, we report here a novel method for the surface Immobilization of DNA using pre-fabricated polyamidoamine (**PAMAM**) starburst dendrimers as mediator moieties. Dendrimers containing 64 primary amino groups In their outer sphere are covalently attached to silylated. glass supports and, subsequently, the dendritic macromolecules are modified with glutaric anhydride and activated with N-hydroxysuccinimide. As a result of the dendritic ***PAMAM*** linker system the surfaces reveal both a very high Immobilization efficiency for amino-modified DNA-oligomers, and also a remarkable high stability during repeated regeneration and re-using cycles. The performance of dendrimer-based DNA microarrays in the discrimination of SNPs is demonstrated.

CATEGORY: BIOCHEMISTRY & MOLECULAR BIOLOGY

SUPPL. TERM PLUS: MASS-SPECTROMETRY; NUCLEIC-ACIDS; ARRAYS; HYBRIDIZATION

REFERENCE(S):

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	ARN PG (RPG)	Referenced Work (RWK)
BENTERS R	2001	2	686	CHEMBIOCHEM
BOLDT L	1998			BIOS 98 5 WORLD C BI
CHEUNG V G	1999	21	15	NAT GENET S
DIEHL F	2001	29	E38	NUCLEIC ACIDS RES
DRYSDALE C M	2000	97	10483	P NATL ACAD SCI USA
ERDOGAN F	2001	29	E36	NUCLEIC ACIDS RES
FAN J B	2000	10	853	GENOME RES
GOLDFELD A E	2000	261	19	GENE
GRIFFIN T J	2000	18	77	TRENDS BIOTECHNOL
GUO B C	1999	71	R333	ANAL CHEM
HELMBERG A	2001	36	1189	EXP GERONTOL
ISOLA N R	2001	73	2126	ANAL CHEM
LINDBLADTOH K	2000	18	1001	NAT BIOTECHNOL
MASKOS U	1992	20	1679	NUCLEIC ACIDS RES
MCCARTHY J J	2000	18	505	NAT BIOTECHNOL
NIEMEYER C M	1999	17	527	J BIOMOL STRUCT DYN
PIEHLER J	2000	15	473	BIOSENS BIOELECTRON
RAITIO M	2001	11	471	GENOME RES
SHCHEPINOV M S	1997	25	1155	NUCLEIC ACIDS RES
SOUTHERN E	1999	21	5	NAT GENET S
THAMEEM F	2001	1518	215	BBA-GENE STRUCT EXPR
TOMALIA D A	1990	29	138	ANGEW CHEM INT EDIT
WANG D G	1998	280	1077	SCIENCE
WU A H B	2001	87	1361	AM J CARDIOL

L16 ANSWER 25 OF 41 SCISEARCH COPYRIGHT (c) 2005 The Thomson Corporation on STN

ACCESSION NUMBER: 2001:913942 SCISEARCH

THE GENUINE ARTICLE: 491JX

TITLE: Tumor targeting and imaging of intraperitoneal tumors by use of **antisense** oligo-DNA complexed with dendrimers and/or avidin in mice

AUTHOR: Sato N; Kobayashi H (Reprint); Saga T; Nakamoto Y; Ishimori T; Togashi K; Fujibayashi Y; Konishi J; Brechbiel M W

CORPORATE SOURCE: Kyoto Univ, Hitachi Med Co, Grad Sch Med, Dept Diagnost & Intervent Imagiol, Sakyo Ku, 54 Kawaharacho, Kyoto 6068507, Japan (Reprint); Kyoto Univ, Hitachi Med Co, Grad Sch Med, Dept Diagnost & Intervent Imagiol, Sakyo Ku,

Kyoto 6068507, Japan; Kyoto Univ, Dept Nucl Med & Diagnost Imaging, Kyoto 6068507, Japan; Fukui Med Univ, Biomed Imaging Res Ctr, Mol Imaging Div, Fukui 9101193, Japan; NCI, Chem Sect, Radiat Oncol Branch, NIH, Bethesda, MD 20892 USA
COUNTRY OF AUTHOR: Japan; USA
SOURCE: CLINICAL CANCER RESEARCH, (NOV 2001) Vol. 7, No. 11, pp. 3606-3612.
ISSN: 1078-0432.
PUBLISHER: AMER ASSOC CANCER RESEARCH, PO BOX 11806, BIRMINGHAM, AL 35202 USA.
DOCUMENT TYPE: Article; Journal
LANGUAGE: English
REFERENCE COUNT: 41
ENTRY DATE: Entered STN: 30 Nov 2001
Last Updated on STN: 30 Nov 2001

ABSTRACT:

To establish an effective nonviral gene delivery and a corresponding imaging method. for i.p.-disseminated tumors, various **oligonucleotide**-carrier complexes were synthesized, and their in vitro and in vivo properties were examined.

The 20-mer multiamino-linked **oligonucleotide** (oligo), synthesized as **antisense** against the c-erbB-2 sequence, and the 3'-biotinylated form of the same **oligonucleotide** (oligo-Bt) were In-111 labeled through a diethylenetriaminepentaacetic acid chelate. In-111-oligo was mixed with generation 4 polyamidoamine dendrimer (G4) or with biotinylated G4 (G4-Bt), which are positively charged to form electrostatic complexes. In-111-oligo/G4-Bt and In-111-oligo-Bt were conjugated to avidin (In-111-oligo/G4-Av and In-111-oligo-Av, respectively). In-111-oligo/G4. In-111-oligo/G4-Av, In-111-oligo-Av, and carrier-free In-111-oligo (2.96 kBq/22.4-45.9 ng of oligo) were examined for internalization in vitro in human ovarian cancer cells (SHIN3). Biodistribution of In-111-oligo-carrier complexes or In-111-oligo was examined in normal (n = 4-7) or i.p. SHIN3 tumor-bearing (n = 6-10) mice 2-24 h after Lp. injection (74 kBq/125-300 ng). Scintigraphy of i.p. tumor-bearing and normal mice was performed at various times postinjection of In-111-oligo-carrier complex or In-111-oligo (1.85 MBq/2.2 ng).

In-111-oligo-carrier complexes bound to the tumor cells were internalized at a rate of 34-56% at 24 h. In vivo, G4, G4-Av, and Av significantly enhanced tumor delivery of In-111-oligo [9.1, 14.5, and 24.4% of injected dose per g of tissue (ID/g) at 24 h; $P < 0.05$, < 0.01, and < 0.0001, respectively] compared with delivery without carrier (0.8% ID/g). Scintigrams of In-111-oligo delivered to the i.p.-disseminated tumors by the carriers were successfully obtained.

In conclusion, G4, G4-Av, and Av can effectively deliver In-111-oligo to i.p.-dissenunated tumors. In-111-oligo-carrier complexes also have potential as tracers for imaging and monitoring of gene delivery.

CATEGORY: ONCOLOGY
SUPPL. TERM PLUS: STARBURST POLYAMIDOAMINE DENDRIMERS; SUICIDE GENE-THERAPY; MONOCLONAL-ANTIBODY; PLASMID DNA; CATIONIC LIPOSOMES; EFFICIENT TRANSFER; **PAMAM** DENDRIMERS; NUDE-MOUSE; IN-VIVO; **OLIGONUCLEOTIDES**

REFERENCE(S):

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	ARN PG (RPG)	Referenced Work (RWK)
ABDOU S	1997	142	1585	ARCH VIROL
ALAHARI S K	1996	50	808	MOL PHARMACOL
BIELINSKA A U	1997	1353	180	BBA-GENE STRUCT EXPR
BIELINSKA A U	1999	10	843	BIOCONJUGATE CHEM
BIELINSKA A	1996	24	2176	NUCLEIC ACIDS RES
BOADO R J	1992	3	519	BIOCONJUGATE CHEM

BOADO R J	1994	5	406	BIOCONJUGATE CHEM
CHALOIN L	1998	243	601	BIOCHEM BIOPH RES CO
DELONG R	1997	86	762	J PHARM SCI
FUJIBAYASHI Y	1999	26	17	NUCL MED BIOL
GAO X	1995	2	710	GENE THER
HABERLAND A	2000	17	229	PHARMACEUT RES
HAENSLER J	1993	4	372	BIOCONJUGATE CHEM
HUDDE T	1999	6	939	GENE THER
KANG S H	1999	9	497	ANTISENSE NUCLEIC A
KIKUCHI A	1999	10	947	HUM GENE THER
KIM J	1999	6	172	CANCER GENE THER
KOBAYASHI H	1995	86	310	JPN J CANCER RES
KOBAYASHI H	2000	27	1334	EUR J NUCL MED
KOBAYASHI H	1999	10	103	BIOCONJUGATE CHEM
KUKOWSKALATALLO J F	1996	93	4897	P NATL ACAD SCI USA
LEONETTI J P	1990	1	149	BIOCONJUGATE CHEM
LEWIS J G	1996	93	3176	P NATL ACAD SCI USA
MARUYAMATABATA H	2000	7	53	GENE THER
PARDRIDGE W M	1991	288	30	FEBS LETT
PIWNICAWORMS D	1994	35	1064	J NUCL MED
PRINCEN F	2000	8	79	J DRUG TARGET
QIN L H	1998	9	553	HUM GENE THER
RAJUR S B	1997	8	935	BIOCONJUGATE CHEM
SATO N	1999	40	685	J NUCL MED
STEIN C A	1993	261	1004	SCIENCE
TANG M X	1997	4	823	GENE THER
THEDREZ P	1989	49	3081	CANCER RES
TOMALIA D A	1990	29	138	ANGEW CHEM INT EDIT
WUNDERBALDINGER P	2000	34	156	EUR J RADIOL
YAKUBOV L A	1989	86	6454	P NATL ACAD SCI USA
YAO Z S	1998	90	25	J NATL CANCER I
YAO Z S	1999	40	479	J NUCL MED
YOO H	1999	16	1799	PHARMACEUT RES
ZELPHATI O	1996	93	11493	P NATL ACAD SCI USA
ZHAO Q Y	1995	5	185	ANTISENSE RES DEV

L16 ANSWER 26 OF 41 MEDLINE on STN

ACCESSION NUMBER: 2002098006 MEDLINE
DOCUMENT NUMBER: PubMed ID: 11828505
TITLE: Dendrimer-activated solid supports for nucleic acid and protein microarrays.
AUTHOR: Benters R; Niemeyer C M; Wohrle D
CORPORATE SOURCE: Institute of Organic and Macromolecular Chemistry, University Bremen, FB2, P.O. Box 330440, 28334 Bremen, Germany.
SOURCE: Chembiochem : a European journal of chemical biology, (2001 Sep 3) 2 (9) 686-94.
Journal code: 100937360. ISSN: 1439-4227.
PUB. COUNTRY: Germany: Germany, Federal Republic of
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200204
ENTRY DATE: Entered STN: 20020206
Last Updated on STN: 20020419
Entered Medline: 20020418

ABSTRACT:
The generation of chemically activated glass surfaces is of increasing interest for the production of microarrays containing DNA, proteins, and low-molecular-weight components. We here report on a novel surface chemistry for highly efficient activation of glass slides. Our method is based on the initial modification of glass with primary amino groups using a protocol,

specifically optimized for high aminosilylation yields, and in particular, for homogeneous surface coverages. In a following step the surface amino groups are activated with a homobifunctional linker, such as disuccinimidylglutarate (DSG) or 1,4-phenylenediisothiocyanate (PDITC), and then allowed to react with a starburst dendrimer that contains 64 primary amino groups in its outer sphere. Subsequently, the dendritic monomers are activated and crosslinked with a homobifunctional spacer, either DSG or PDITC. This leads to the formation of a thin, chemically reactive polymer film, covalently affixed to the glass substrate, which can directly be used for the covalent attachment of amino-modified components, such as **oligonucleotides**. The resulting DNA microarrays were studied by means of nucleic acid hybridization experiments using fluorophor-labeled complementary **oligonucleotide** targets. The results indicate that the novel dendrimer-activated surfaces display a surface coverage with capture oligomers about twofold greater than that with conventional microarrays containing linear chemical linkers. In addition, the experiments suggest that the hybridization occurs with decreased steric hindrance, likely a consequence of the long, flexible linker chain between the surface and the DNA oligomer. The surfaces were found to be resistant against repeated alkaline regeneration procedures, which is likely a consequence of the crosslinked polymeric structure of the dendrimer film. The high stability allows multiple hybridization experiments without significant loss of signal intensity. The versatility of the dendrimer surfaces is also demonstrated by the covalent immobilization of streptavidin as a model protein.

CONTROLLED TERM: Autoradiography
Cross-Linking Reagents
*Glass
Indicators and Reagents
Nucleic Acid Hybridization
*Nucleic Acids: CH, chemistry
***Oligonucleotide Array Sequence Analysis: MT, methods**
Oligonucleotides: CH, chemistry
Photometry
Polyamines
Research Support, Non-U.S. Gov't
Streptavidin: CH, chemistry
Surface Properties
Thiocyanates: CH, chemistry

CAS REGISTRY NO.: 4044-65-9 (bitoscanate); 9013-20-1 (Streptavidin)

CHEMICAL NAME: 0 (Cross-Linking Reagents); 0 (Glass); 0 (Indicators and Reagents); 0 (Nucleic Acids); 0 (**Oligonucleotides**); 0 (**PAMAM** Starburst); 0 (Polyamines); 0 (Thiocyanates)

L16 ANSWER 27 OF 41 SCISEARCH COPYRIGHT (c) 2005 The Thomson Corporation on STN

ACCESSION NUMBER: 2001:859784 SCISEARCH

THE GENUINE ARTICLE: 485ZJ

TITLE: Transcytosis of nanoparticle and dendrimer delivery systems: evolving vistas

AUTHOR: Florence A T (Reprint); Hussain N

CORPORATE SOURCE: Univ London, Sch Pharm, Ctr Drug Delivery Res, 29-39 Brunswick Sq, London WC1N 1AX, England (Reprint); Univ London, Sch Pharm, Ctr Drug Delivery Res, London WC1N 1AX, England

COUNTRY OF AUTHOR: England

SOURCE: ADVANCED DRUG DELIVERY REVIEWS, (1 OCT 2001) Vol. 50, Supp. [1], pp. S69-S89.
ISSN: 0169-409X.

PUBLISHER: ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS.

DOCUMENT TYPE: Article; Journal

LANGUAGE: English
REFERENCE COUNT: 86
ENTRY DATE: Entered STN: 9 Nov 2001
Last Updated on STN: 9 Nov 2001

ABSTRACT:
The translocation of particulate matter across the gastrointestinal tract is now a well documented phenomenon offering new potential for the delivery of drugs with poor dissolution profiles and labile chemistries via encapsulation in biodegradable nanoparticles. The last few years have seen an acceleration in the number of publications describing the varying facets of this approach and the multidisciplinary nature of this field. This review delineates data from this rather fragmented area and from cognate fields to provide a physicochemical viewpoint of the importance of surface chemistries of oral drug delivery vehicles and their interactions in and with gut contents prior to uptake. The role of lymphoid and non-lymphoid tissues is examined, and the role of bioadhesion is discussed. The exciting potential of molecular encapsulation of drugs via dendrimers and star branched molecules is discussed in the context of nanotechnological applications for the oral route. Evolving vistas include a better understanding of the plasticity of the intestinal epithelium and M-cell induction as well as the influence of disease states on particulate uptake. In this review we address a number of issues deemed vital to an understanding of the subject including (i) some background knowledge on particulate uptake (the subject of several reviews), (ii) factors affecting uptake such as diameter and surface charge and character, (iii) the dynamic nature of particle interactions in the gut, (iv) the dynamic nature of the processes of capture, adhesion, uptake, transcytosis and translocation, and (v) the influence of surface ligands.

CATEGORY: PHARMACOLOGY & PHARMACY
SUPPLEMENTARY TERM: nanoparticle; dendrimer; translocation; Peyer's patch; uptake; absorption; drug delivery; intestine; transfection; gene therapy
SUPPL. TERM PLUS: GASTROINTESTINAL-TRACT; PARTICLE-SIZE; ORAL UPTAKE; IN-VIVO; **ANTISENSE OLIGONUCLEOTIDES**; POLYAMIDOAMINE DENDRIMERS; INTESTINAL-MUCOSA; DIGESTIVE FLUIDS; **PAMAM** DENDRIMERS; SHEAR-FLOW

REFERENCE(S):

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	ARN PG (RPG)	Referenced Work (RWK)
AKIYAMA Y	1999		477	BIOADHESIVE DRUG DEL
ALJAMAL K	2001			UNPUB SOLUBILIZATION
ALPAR H O	1989	41	194	J PHARM PHARMACOL
BERG R D	1999	473	11	ADV EXP MED BIOL
BESTETTI A	2000	41	1597	J NUCL MED
BLISS J M	1996	21	221	MOL MICROBIOL
CHRISTERSSON C E	1992	100	98	SCAND J DENT RES
CONACHER M	2001	19	2965	VACCINE
DAWSON G F	2000	17	1420	PHARMACEUT RES
DEJAEGHERE F	2000	8	143	J DRUG TARGET
DELIE F	2001	19	25	INT J PHARM
DEMANECHE S	2001	67	293	APPL ENVIRON MICROB
DENISMIZE K S	2000	7	2105	GENE THER
DEROSSI D	1998	8	84	TRENDS CELL BIOL
DESAI M P	1996	13	1838	PHARMACEUT RES
DICKERSON J B	2001	20	500	BIOTECHNOL BIOENG
DURRER C	1999	9	437	STP PHARMA SCI
DURRER C	1994	11	680	PHARMACEUT RES
DURRER C	1994	11	674	PHARMACEUT RES
EASSON J H	1999		409	BIOADHESIVE DRUG DEL
ELDRIDGE J H	1989	251	191	ADV EXP MED BIOL
FLORENCE A T	1997	14	259	PHARMACEUT RES

FLORENCE A T	2000	65	253	J CONTROL RELEASE
FLORENCE A T	1995	3	65	J DRUG TARGET
FRETER R	1981	34	234	INFECT IMMUN
GLANTZ P O	1995	22	585	J ORAL REHABIL
GULLBERG E	2000	279	808	BIOCHEM BIOPH RES CO
HODGES G M	1995	3	57	J DRUG TARGET
HOICZYK E	2000	174	11	ARCH MICROBIOL
HUDDE T	1999	6	939	GENE THER
HUSSAIN N	2001	50	107	ADV DRUG DELIVER REV
HUSSAIN N	1998	15	153	PHARMACEUT RES
IRACHE J M	1996	13	1716	PHARMACEUT RES
ISBERG R R	1987	50	769	CELL
JANAS T	2001	48	163	ACTA BIOCHIM POL
JANI P	1990	42	821	J PHARM PHARMACOL
JANI P	1989	41	809	J PHARM PHARMACOL
KAMBA M	2000	208	61	INT J PHARM
KANEKO H	2000	267	8	VIROLOGY
KERNEIS S	1999	11	205	SEMIN IMMUNOL
KERNEIS S	1997	277	949	SCIENCE
KIM R	2001	3	S197	MOL THER
KOJIMA C	2000	11	910	BIOCONJUGATE CHEM
KOPINGHOGGARD M	1999	26	705	P CONTROL REL SOC
KRAUSE D S	2001	105	369	CELL
LAMPRECHT A	2001	72	235	J CONTROL RELEASE
LANDRY F B	1998	6	293	J DRUG TARGET
LANDRY F B	1996	17	715	BIOMATERIALS
LASSEN B	1994	272	1143	COLLOID POLYM SCI
LECUIT M	1997	65	5309	INFECT IMMUN
LEHR C M	1992	9	547	PHARMACEUT RES
LORZ B	2000	51	468	EUROPHYS LETT
LUO D	2000	18	893	NAT BIOTECHNOL
MACLAUGHLIN F C	1998	56	259	J CONTROL RELEASE
MALIK N	1999	10	767	ANTI-CANCER DRUG
MASEL J	2001	1535	164	BBA-MOL BASIS DIS
MATHIOWITZ E	1997	386	410	NATURE
MATSUNO K	1983	33	263	J RETICULOENDOTH SOC
MCCLEAN S	1998	6	153	EUR J PHARM SCI
MELDAL M	1997	1	552	CURR OPIN CHEM BIOL
MITCHELL J P	1999	9	2785	BIOORG MED CHEM LETT
PAGE D T	2001	6	92	DRUG DISCOV TODAY
PATIL V R S	2001	80	1733	BIOPHYS J
POWELL J J	2000	14	99	J AUTOIMMUN
PRATTEN M K	1986	881	307	BIOCHIM BIOPHYS ACTA
RENWICK L C	2001	172	119	TOXICOL APPL PHARM
ROY K	1999	5	387	NAT MED
SAKTHIVEL T	1998	15	776	PHARMACEUT RES
SANDERS N N	2000	162	1905	AM J RESP CRIT CARE
SIEPMANN J	2001	48	229	ADV DRUG DELIVER REV
STOLL R G	1973	62	65	J PHARM SCI
STOLL B R	2000	64	217	J CONTROL RELEASE
TENG C L C	1987	6	133	J CONTROL RELEASE
TIROSH B	1998	87	453	J PHARM SCI
TOBIO M	2000	18	315	COLLOID SURFACE B
UCHIDA T	1994	17	1272	BIOL PHARM BULL
VANDEWEERT W M	2000	17	1159	PHARMACEUT RES
VANDERLUBBEN I M	2001	22	687	BIOMATERIALS
VASSILAKOS N	1993	101	339	SCAND J DENT RES
WANG J	2000	7	237	DRUG DELIV
WATTENBARGER M R	1990	57	765	BIOPHYS J
WINNIPS C	2001	1	62	DRUG DISCOV WORLD
YOO H	1999	16	1799	PHARMACEUT RES
YOO H	2000	28	4225	NUCLEIC ACIDS RES

ZAUNER W	2001	71	39	J CONTROL RELEASE
ZIMMERMAN S C	1996	271	1095	SCIENCE

L16 ANSWER 28 OF 41 EMBASE COPYRIGHT 2005 ELSEVIER INC. ALL RIGHTS RESERVED.
on STN DUPLICATE 5

ACCESSION NUMBER: 2000405498 EMBASE
TITLE: Enhanced delivery of **antisense oligonucleotides** with fluorophore-conjugated **PAMAM** dendrimers.
AUTHOR: Yoo H.; Juliano R.L.
CORPORATE SOURCE: R.L. Juliano, Department of Pharmacology, School of Medicine, University of North Carolina, Chapel Hill, NC 27599-7365, United States. arjay@med.unc.edu
SOURCE: Nucleic Acids Research, (1 Nov 2000) Vol. 28, No. 21, pp. 4225-4231.
Refs: 33
ISSN: 0305-1048 CODEN: NARHAD
COUNTRY: United Kingdom
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 022 Human Genetics
029 Clinical Biochemistry
LANGUAGE: English
SUMMARY LANGUAGE: English
ENTRY DATE: Entered STN: 20001213
Last Updated on STN: 20001213

ABSTRACT: **PAMAM** dendrimers are cationic polymers that have been used for the delivery of genes and **oligonucleotides** to cells. However, little is known about the behavior of dendrimer-nucleic acid complexes once they reach the cell interior. To pursue this issue, we prepared dendrimers conjugated with the fluorescent dye Oregon green 488. These were used in conjunction with **oligonucleotides** labeled with a red (TAMRA) fluorophore in order to visualize the subcellular distribution of the dendrimer-**oligonucleotide** complex and of its components by two-color digital fluorescence microscopy. The 2'-O-methyl **antisense** ***oligonucleotide*** sequence used in these studies was designed to correct splicing at an aberrant intron inserted into a luciferase reporter gene; thus effective delivery of the **antisense** agent results in the expression of the reporter gene product. The dendrimer-**oligonucleotide** complex remained associated during the process of uptake into vesicular compartments and eventual entry into the nucleus. Since the pharmacological activity of the ***antisense*** compound was manifest under these conditions, it suggests that the dendrimer-**oligonucleotide** complex is functionally active. A surprising result of these studies was that the Oregon green 488-conjugated dendrimer was a much better delivery agent for **antisense** compounds than unmodified dendrimer. This suggests that coupling of relatively hydrophobic small molecules to **PAMAM** dendrimers may provide a useful means of enhancing their capabilities as delivery agents for nucleic acids.

CONTROLLED TERM: Medical Descriptors:
gene targeting
conjugation
chemical labeling
cellular distribution
fluorescence microscopy
color
nucleotide sequence
intron
RNA splicing
gene insertion
reporter gene
gene expression
cell nucleus

human
controlled study
human cell
article
priority journal
Drug Descriptors:
***antisense oligonucleotide**
*dendrimer
*polyamine derivative
fluorescent dye
luciferase: EC, endogenous compound
gene product: EC, endogenous compound
nucleic acid: EC, endogenous compound
CAS REGISTRY NO.: (luciferase) 61970-00-1, 9014-00-0

L16 ANSWER 29 OF 41 SCISEARCH COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 2000:188851 SCISEARCH
THE GENUINE ARTICLE: 275LZ
TITLE: Molecular modeling of polyamidoamine (**PAMAM**) Starburst (TM) dendrimers
AUTHOR: Bhalgat M K; Roberts J C (Reprint)
CORPORATE SOURCE: Univ Utah, Dept Med Chem, Salt Lake City, UT 84112 USA (Reprint)
COUNTRY OF AUTHOR: USA
SOURCE: EUROPEAN POLYMER JOURNAL, (MAR 2000) Vol. 36, No. 3, pp. 647-651.
ISSN: 0014-3057.
PUBLISHER: PERGAMON-ELSEVIER SCIENCE LTD, THE BOULEVARD, LANGFORD LANE, KIDLINGTON, OXFORD OX5 1GB, ENGLAND.
DOCUMENT TYPE: Article; Journal
LANGUAGE: English
REFERENCE COUNT: 23
ENTRY DATE: Entered STN: 2000
Last Updated on STN: 2000
ABSTRACT:
Highly organized polymeric structures known as Starburst(TM) dendrimers have been subjected to qualitative structural evaluation using molecular modeling tools. These molecules are becoming increasingly important in several different fields ranging from drug delivery to applications in selective adsorption and catalysis, and even as chromatographic materials and adsorbents. Our studies suggest that low generation dendrimers are somewhat asymmetric and that the modification of the dendrimers with molecules such as porphyrins, may lead to the reduced accessibility of other surface groups thus limiting further modification.
CATEGORY: POLYMER SCIENCE
SUPPL. TERM PLUS: CHEMICAL MODIFICATION STRATEGY; NEUTRON-CAPTURE THERAPY; EFFICIENT TRANSFER; DELIVERY; **OLIGONUCLEOTIDES**; AGGREGATION; EXPRESSION; COMPLEXES; CHEMISTRY; TUMORS
REFERENCE(S):

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	ARN PG (RPG)	Referenced Work (RWK)
ALAHARI S K	1998	286	419	J PHARMACOL EXP THER
BARTH R F	1994	5	58	BIOCONJUGATE CHEM
BELCHEVA N	1998	9	207	J BIOMAT SCI-POLYM E
BHALGAT M K	1997	4	1	DRUG DELIV
BHALGAT M K	1997	4	13	DRUG DELIV
BIELINSKA A	1996	24	2176	NUCLEIC ACIDS RES
DELONG R	1997	86	762	J PHARM SCI
KUKOWSKALATALLO J F	1996	93	4897	P NATL ACAD SCI USA
LESCANEC R L	1990	23	2280	MACROMOLECULES

MANSFIELD M L	1993	26	4262	MACROMOLECULES
NAYLOR A M	1989	111	2339	J AM CHEM SOC
PAGE D	1997	8	714	BIOCONJUGATE CHEM
QIN L H	1998	9	553	HUM GENE THER
ROBERTS J C	1996	30	53	J BIOMED MATER RES
ROBERTS J C	1990	1	305	BIOCONJUGATE CHEM
SINGH P	1998	9	54	BIOCONJUGATE CHEM
TANG M X.	1997	4	823	GENE THER
TANG M X	1996	7	703	BIOCONJUGATE CHEM
THOMPSON J P	1997	14	837	GLYCOCONJUGATE J
TOMALIA D A	1993	26	91	ALDRICHIM ACTA
TOMALIA D A	1990	29	138	ANGEW CHEM INT EDIT
WIENER E C	1997	32	748	INVEST RADIOL
YANG W L	1997	57	4333	CANCER RES

L16 ANSWER 30 OF 41 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN DUPLICATE 6

ACCESSION NUMBER: 2000:302912 BIOSIS
DOCUMENT NUMBER: PREV200000302912
TITLE: Inhibition of transforming growth factor beta1 and beta2 expression in human and rat lung fibroblasts using **antisense oligonucleotides** complexed with starburst **PAMAM** dendrimers.
AUTHOR(S): Gharaee-Kermani, M. [Reprint author]; Phan, S.; Baker, J., Jr.
CORPORATE SOURCE: Department of Internal Medicine, University of Michigan Medical School, Ann Arbor, MI, 48109, USA
SOURCE: FASEB Journal, (March 15, 2000) Vol. 14, No. 4, pp. A555. print.
Meeting Info.: Annual Meeting of Professional Research Scientists: Experimental Biology 2000. San Diego, California, USA. April 15-18, 2000. Federation of American Societies for Experimental Biology.
CODEN: FAJOEC. ISSN: 0892-6638.
DOCUMENT TYPE: Conference; (Meeting)
Conference; Abstract; (Meeting Abstract)
LANGUAGE: English
ENTRY DATE: Entered STN: 12 Jul 2000
Last Updated on STN: 7 Jan 2002
CONCEPT CODE: Respiratory system - General and methods 16001
Cytology - Animal 02506
Cytology - Human 02508
Biochemistry studies - General 10060
Biophysics - General 10502
General biology - Symposia, transactions and proceedings 00520
INDEX TERMS: Major Concepts
Respiratory System (Respiration)
INDEX TERMS: Parts, Structures, & Systems of Organisms
fibroblasts; lung: respiratory system
INDEX TERMS: Chemicals & Biochemicals
antisense oligonucleotides; collagen; mRNA [messenger RNA]: expression; starburst **PAMAM** dendrimers; transforming growth factor-beta-1: expression; transforming growth factor-beta-2: expression
INDEX TERMS: Miscellaneous Descriptors
Meeting Abstract
ORGANISM: Classifier
Hominidae 86215
Super Taxa
Primates; Mammalia; Vertebrata; Chordata; Animalia

Organism Name
human
Taxa Notes
Animals, Chordates, Humans, Mammals, Primates, Vertebrates

ORGANISM:

Classifier
Muridae 86375
Super Taxa
Rodentia; Mammalia; Vertebrata; Chordata; Animalia
Organism Name
rat
Taxa Notes
Animals, Chordates, Mammals, Nonhuman Vertebrates, Nonhuman Mammals, Rodents, Vertebrates

L16 ANSWER 31 OF 41 EMBASE COPYRIGHT 2005 ELSEVIER INC. ALL RIGHTS RESERVED. on STN

ACCESSION NUMBER: 2000254618 EMBASE

TITLE: The use of **PAMAM** dendrimers in the efficient transfer of genetic material into cells.

AUTHOR: Eichman J.D.; Bielinska A.U.; Kukowska-Latallo J.F.; Baker J.R. Jr.

CORPORATE SOURCE: J.R. Baker, University of Michigan, Center for Biologic Nanotechnology, Department of Internal Medicine, Ann Arbor, MI 48109, United States. jbakerjr@umich.edu

SOURCE: Pharmaceutical Science and Technology Today, (1 Jul 2000) Vol. 3, No. 7, pp. 232-245.
Refs: 86
ISSN: 1461-5347 CODEN: PSTTF8

PUBLISHER IDENT.: S 1461-5347(00)00273-X

COUNTRY: United Kingdom

DOCUMENT TYPE: Journal; General Review

FILE SEGMENT: 015 Chest Diseases, Thoracic Surgery and Tuberculosis
022 Human Genetics
029 Clinical Biochemistry
030 Pharmacology
037 Drug Literature Index

LANGUAGE: English

SUMMARY LANGUAGE: English

ENTRY DATE: Entered STN: 20000803
Last Updated on STN: 20000803

ABSTRACT: Polyamidoamine (**PAMAM**) dendrimers have steadily grown in popularity in the past decade in a variety of disciplines, ranging from materials science to biomedicine. This can be attributed in part to their use in applications that range from computer toners to medical diagnostics. ***PAMAM*** dendrimers are safe and nonimmunogenic, and can function as highly efficient cationic polymer vectors for delivering genetic material into cells. They have been shown to be as efficient or more efficient than either cationic liposomes or other cationic polymers (e.g. polyethylenimine, polylysine) for in vitro gene transfer. This article will focus on the application of **PAMAM** dendrimers as a nonviral gene delivery vector from the initial discovery of this capacity to the most recent experimental findings. Copyright (C) 2000 Elsevier Science Ltd.

CONTROLLED TERM: Medical Descriptors:
*gene transfer
*gene targeting
*lung fibrosis: DT, drug therapy
nonhuman
mouse
animal experiment
animal model

review
Drug Descriptors:
*dendrimer
*plasmid DNA
***antisense oligonucleotide: DT, drug therapy**
liposome
polymer

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ACCESSION NUMBER: 2000126495 EMBASE
TITLE: A lipid carrier with a membrane active component and a small complex size are required for efficient cellular delivery of anti-sense phosphorothioate **oligonucleotides**.
AUTHOR: Jaaskelainen I.; Peltola S.; Honkakoski P.; Monkkonen J.; Urtti A.
CORPORATE SOURCE: I. Jaaskelainen, Department of Pharmaceutics, University of Kuopio, P.O. Box 1627, FIN-70211 Kuopio, Finland. ijaaskel@messi.uku.fi
SOURCE: European Journal of Pharmaceutical Sciences, (2000) Vol. 10, No. 3, pp. 187-193.
Refs: 25
ISSN: 0928-0987 CODEN: EPSCED
PUBLISHER IDENT.: S 0928-0987(00)00068-3
COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 022 Human Genetics
027 Biophysics, Bioengineering and Medical Instrumentation
030 Pharmacology
037 Drug Literature Index
039 Pharmacy
LANGUAGE: English
SUMMARY LANGUAGE: English
ENTRY DATE: Entered STN: 20000421
Last Updated on STN: 20000421

ABSTRACT: Anti-sense **oligonucleotides** are potential therapeutic agents that are used to block protein expression from mRNA. To assess the essential properties for an efficient cellular delivery system of phosphorothioate **oligonucleotides** (PS-ODNs), different cationic carriers were compared. The carriers were complexed with ***oligonucleotides*** at various +/- charge ratios in MES-Hepes buffer. Cationic polymers, polylysines (PLL, mean MWs 4000, 20 000, 200 000 kDa), polyethyleneimines (PEI, mean MWs 25 and 800 kDa) and fractured sixth-generation polyamidoamine dendrimer (**PAMAM**) were tested for ODN delivery into a D 407 cell line (human retinal pigment epithelial cells) with stably transfected luciferase gene. Anti-sense ODN was directed against the luciferase gene, and the anti-sense effect was determined using a luminometric method. Lipid-based vehicles included DOTAP, DOTAP/DOPE (1/1 by mol), DOTAP/Chol (1/1 by mol), DOTAP/DOPE/Chol (2/1/1 by mol), DOGS and Cytofectin GS/DOPE (2/1 by mol). Additionally a membrane-active peptide JTS-1 (NH2 -GLFEALLELLESLWELLLEA-COOH) was added to the complexes containing DOTAP, PEI or PLL. In D 407 and CV-1 cells, the anti-sense effect was seen only with lipid-based carriers with a membrane-active component (DOPE or JTS-1). The polymeric systems were ineffective. The effect of the complexation medium was further studied on CV-1 cells. Complexes were prepared in either water, MES-Hepes buffer or cell growth medium (DMEM). Complexes prepared in water were generally most effective and the greater activity is probably due to the smaller complex size. Complex sizes differed greatly in buffer and DMEM, especially in the case of DOPE containing complexes. In conclusion, lipid carrier with a membrane active component and small complex size are required

for an efficient cellular delivery of phosphorothioate **oligonucleotides**
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CONTROLLED TERM: Medical Descriptors:
particle size
complex formation
drug delivery system
protein expression
electricity
molecular weight
pigment epithelium
cell line
genetic transfection
photometry
technique
human
nonhuman
controlled study
human cell
animal cell
article
priority journal
Drug Descriptors:
*oligodeoxynucleotide phosphorothioate: PD, pharmacology
*oligodeoxynucleotide phosphorothioate: PR, pharmaceutics
***antisense oligonucleotide: PD, pharmacology**
***antisense oligonucleotide: PR, pharmaceutics**
drug carrier: PR, pharmaceutics
lipid: PR, pharmaceutics
messenger RNA: EC, endogenous compound
cation: PR, pharmaceutics
4 (2 hydroxyethyl) 1 piperazineethanesulfonic acid
buffer
polylysine: PR, pharmaceutics
polymer: PR, pharmaceutics
polyethyleneimine: PR, pharmaceutics
dendrimer: PR, pharmaceutics
polyamine: PR, pharmaceutics
luciferase
cholesterol: PR, pharmaceutics
peptide
water
polyamidoamine: PR, pharmaceutics
dotap: PR, pharmaceutics
n [1 (2,3 dioleoyloxy)propyl] n,n,n trimethylammonium methylsulfate: PR, pharmaceutics
1,2 dioleoyl 3 phosphatidylethanolamine: PR, pharmaceutics
dope: PR, pharmaceutics
unclassified drug

CAS REGISTRY NO.: (lipid) 66455-18-3; (4 (2 hydroxyethyl) 1 piperazineethanesulfonic acid) 7365-45-9; (polylysine) 25104-18-1, 25988-63-0, 33960-24-6, 38000-06-5, 73565-56-7; (polyethyleneimine) 74913-72-7; (luciferase) 61970-00-1, 9014-00-0; (cholesterol) 57-88-5; (water) 7732-18-5

COMPANY NAME: Aldrich; Avanti (United States); Fluka; Sigma (United States)

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ACCESSION NUMBER: 1999:272418 SCISEARCH

THE GENUINE ARTICLE: 184XD

TITLE: An EPR study of the interactions between starburst

dendrimers and polynucleotides

AUTHOR: Ottaviani M F (Reprint); Sacchi B; Turro N J; Chen W; Jockusch S; Tomalia D A

CORPORATE SOURCE: Univ Florence, Dept Chem, Via G Capponi 9, I-50121 Florence, Italy (Reprint); Univ Florence, Dept Chem, I-50121 Florence, Italy; Columbia Univ, Dept Chem, New York, NY 10027 USA; Michigan Mol Inst, Midland, MI 48640 USA

COUNTRY OF AUTHOR: Italy; USA

SOURCE: MACROMOLECULES, (6 APR 1999) Vol. 32, No. 7, pp. 2275-2282

ISSN: 0024-9297.

PUBLISHER: AMER CHEMICAL SOC, 1155 16TH ST, NW, WASHINGTON, DC 20036 USA.

DOCUMENT TYPE: Article; Journal

LANGUAGE: English

REFERENCE COUNT: 40

ENTRY DATE: Entered STN: 1999
Last Updated on STN: 1999

ABSTRACT:

Interactions of nitroxide-labeled polyamidoamine dendrimers of generations 2 and 6 (2SBD-T and 6SBD-T, respectively) with double-stranded polynucleotides-Calf Thymus DNA (C.T.DNA), poly(deoxyadenylic-deoxythymidylic acid) (termed Poly(AT)), poly(deoxyguanylic-deoxycytidylic acid) (termed Poly(GC)), and a double-stranded **oligonucleotide** of 12 base pairs (DNA-12mer)-were investigated by EPR. Computer-aided analysis of the EPR spectra provided information on the mobility of the nitroxide labels and their partition in different environments, which, in turn, gave information on the interactions between dendrimers and polynucleotides. After complexes were formed between DNA and SBD, the labels retained fast mobility at room temperature. On the basis of EPR analysis at 258 K, interaction of oligo- or polynucleotides with SBDs decreased in the following order: DNA-lamer > C.T.DNA > Poly(GC) > Poly(AT). Small dendrimers (2SBD-T) at low pH (5.5) showed significant interaction with the polynucleotides, which decreased with an increase in concentration due to self-aggregation of dendrimer molecules. Conversely, interaction between large dendrimers (6SBD-T) and polynucleotides increased with an increase in SBD concentration until saturation of the interacting sites occurred. Comparison with previous studies on nSBD-T-vesicle systems indicated that interaction of dendrimers with vesicles is stronger than dendrimer-polynucleotide interaction. This study provides some insights into dendrimer-DNA interactions of particular interest in understanding the mechanism of gene transfer to mammalian cells by SBDs.

CATEGORY: POLYMER SCIENCE

SUPPL. TERM PLUS: SPIN-ECHO MODULATION; POLYAMIDOAMINE DENDRIMERS; **PAMAM** DENDRIMERS; ACID; CHEMISTRY; MICELLES; POLYMERS; PROBE; DNA; ARCHITECTURE

REFERENCE(S):

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	ARN PG (RPG)	Referenced Work (RWK)
ALPER J	1991	251	1562	SCIENCE
AMATO I	1990	138	298	SCI NEWS
BAGLIONI P	1987	91	1516	J PHYS CHEM-US
BEHR J P	1993	26	274	ACCOUNTS CHEM RES
BERLINER L J	1989	8		BIOL MAGNETIC RESONA
BERLINER L J	1976	1		SPIN LABELING THEORY
BERLINER L J	1979	2		SPIN LABELING THEORY
BIELINSKA A	1996	24	2176	NUCLEIC ACIDS RES
BRIBER R M	1992	67	430	POLYM MAT SCI ENG
CHAIRES J B	1982	21	3933	BIOCHEMISTRY-US
CHEN W				IN PRESS LANGMUIR
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HAENSLER J	1993	4	372	BIOCONJUGATE CHEM
HASHIMOTO S	1983	105	5230	J AM CHEM SOC
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HIFF T	1989	93	1572	J PHYS CHEM-US
INMAN R B	1962	5	172	J MOL BIOL
ISSBERNER J	1994	33	2413	ANGEW CHEM INT EDIT
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MAKELBURGER H B	1992	31	1571	ANGEW CHEM INT EDIT
MILLAR D P	1981	74	4200	J CHEM PHYS
NAYLOR A M	1989	111	2341	J AM CHEM SOC
NEWKOME G R	1993			ADV DENDRITIC MACROM
NEWKOME G R	1991	30	1176	ANGEW CHEM INT EDIT
OTTAVIANI M F	1997	13	347	APPL MAGN RESON
OTTAVIANI M F	1998	102	6029	J PHYS CHEM B
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PAULY G T	1989	72	110	HELV CHIM ACTA
RAMZI A	1998	31	1621	MACROMOLECULES
SCHNEIDER D J	1989	8	1	BIOL MAGN RESON
TANG M X	1996	7	703	BIOCONJUGATE CHEM
TOMALIA D A	1990	29	138	ANGEW CHEM INT EDIT
TOMALIA D A	1993	165	193	TOP CURR CHEM
TOMALIA D A	1987	109	1601	J AM CHEM SOC
UPPULURI S	1998	31	4498	MACROMOLECULES

L16 ANSWER 34 OF 41 EMBASE
on STN DUPLICATE 8

ACCESSION NUMBER: 2000027815 EMBASE

TITLE: **PAMAM** dendrimers as delivery agents for **antisense oligonucleotides**.

AUTHOR: Yoo H.; Sazani P.; Juliano R.L.

CORPORATE SOURCE: R.L. Juliano, Department of Pharmacology, University of North Carolina, Chapel Hill, NC 27599, United States. arjay@med.unc.edu

SOURCE: Pharmaceutical Research, (1999) Vol. 16, No. 12, pp. 1799-1804.
Refs: 40
ISSN: 0724-8741 CODEN: PHREEB

COUNTRY: United States

DOCUMENT TYPE: Journal; Article

FILE SEGMENT: 027 Biophysics, Bioengineering and Medical Instrumentation
037 Drug Literature Index
039 Pharmacy

LANGUAGE: English

SUMMARY LANGUAGE: English

ENTRY DATE: Entered STN: 20000202
Last Updated on STN: 20000202

ABSTRACT: Purpose. To investigate the potential use of **PAMAM** dendrimers for the delivery of **antisense oligonucleotides** into cells under conditions that mimic the in vivo environment. Methods. We used HeLa cells stably transfected with plasmid pLuc/705 which has a luciferase gene interrupted by a human β-globin intron mutated at nucleotide 705, thus causing incorrect splicing. An **antisense** ***oligonucleotide*** overlapping the 705 splice site, when delivered effectively, corrects splicing and allows luciferase expression. The ability of dendrimers to deliver **oligonucleotides** to HeLa Luc/705 cells was evaluated in the absence or presence of serum. Results. **PAMAM**

dendrimers formed stable complexes with **oligonucleotides** that had modest cytotoxicity and showed substantial delivery activity. The dose of the ***oligonucleotide*** , the charge ratio of **oligonucleotide** to dendrimer, and the size (generation) of the dendrimers were all critical variables for the **antisense** effect. The physical properties of dendrimer/**oligonucleotide** complexes were further investigated using sedimentation and gel electrophoresis methods. Effective ***oligonucleotide*** /generation 5 dendrimer complexes were macromolecular rather than particulate in nature, and were not sedimented at 100,000 RPM. Compared to other types of delivery agents, **PAMAM** dendrimers were more effective in delivering **oligonucleotides** into the nucleus of cells in the presence of serum proteins. Conclusions. Our results suggest that **PAMAM** dendrimers form nonparticulate delivery complexes that function in the presence of serum proteins and thus may be suited for in vivo therapeutic applications.

CONTROLLED TERM: Medical Descriptors:
*drug delivery system
HeLa cell
RNA splicing
drug cytotoxicity
dose response
physical chemistry
human
controlled study
human cell
article
priority journal
Drug Descriptors:
***antisense oligonucleotide: PR, pharmaceutics**
***antisense oligonucleotide: PK, pharmacokinetics**
*dendrimer: PR, pharmaceutics
*dendrimer: PK, pharmacokinetics
*polyamidoamine dendrimer: PR, pharmaceutics
*polyamidoamine dendrimer: PK, pharmacokinetics

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on STN DUPLICATE 9

ACCESSION NUMBER: 1999270910 EMBASE
TITLE: Uptake and intracellular distribution of **oligonucleotides** vectorized by a **PAMAM** dendrimer.
AUTHOR: Helin V.; Gottikh M.; Mishal Z.; Subra F.; Malvy C.; Lavignon M.
CORPORATE SOURCE: V. Helin, UMR 1772, Institut Gustave Roussy, 39 Rue Camille Desmoulins, 94800 Villejuif, France
SOURCE: Nucleosides and Nucleotides, (1999) Vol. 18, No. 6-7, pp. 1721-1722.
Refs: 4
ISSN: 0732-8311 CODEN: NUNUD5
COUNTRY: United States
DOCUMENT TYPE: Journal; Conference Article
FILE SEGMENT: 016 Cancer
029 Clinical Biochemistry
037 Drug Literature Index
LANGUAGE: English
SUMMARY LANGUAGE: English
ENTRY DATE: Entered STN: 19990819
Last Updated on STN: 19990819

ABSTRACT: We studied the uptake and intracellular distribution of an FITC labelled phosphodiester oligodeoxynucleotide (ODN) vectorized by a dendrimeric structure in cell culture.

CONTROLLED TERM: Medical Descriptors:
*protein structure
*protein transport
cell culture
cellular distribution
confocal microscopy
flow cytometry
cancer cell
fibroblast
lymphocyte
human
nonhuman
human cell
animal cell
conference paper
Drug Descriptors:
***oligonucleotide**
*fluorescein isothiocyanate
*phosphodiester oligodeoxynucleotide
complementary RNA
dendrimer

CAS REGISTRY NO.: (fluorescein isothiocyanate) 25168-13-2, 27072-45-3, 3326-32-7

L16 ANSWER 36 OF 41 EMBASE COPYRIGHT 2005 ELSEVIER INC. ALL RIGHTS RESERVED. on STN DUPLICATE 10

ACCESSION NUMBER: 1998242007 EMBASE

TITLE: Interaction of oligodeoxynucleotides with mycobacteria: Implications for new therapeutic strategies.

AUTHOR: Attia S.A.; Shepherd V.E.; Rosenblatt M.N.; Davidson M.K.; Hughes J.A.

CORPORATE SOURCE: J.A. Hughes, University of Florida, College of Pharmacy, 1600 SW Archer RD, Gainesville, FL 32610, United States

SOURCE: Antisense and Nucleic Acid Drug Development, (1998) Vol. 8, No. 3, pp. 207-214.
Refs: 27
ISSN: 1087-2906 CODEN: ANADF5

COUNTRY: United States

DOCUMENT TYPE: Journal; Article

FILE SEGMENT: 004 Microbiology
037 Drug Literature Index

LANGUAGE: English

SUMMARY LANGUAGE: English

ENTRY DATE: Entered STN: 19980806
Last Updated on STN: 19980806

ABSTRACT: The use of synthetic **oligonucleotides** (ONs) to systematically address new pharmacologic targets in mycobacteria would enhance the introduction of new molecular targets for drug intervention. ***Oligonucleotides*** ' mechanism of action allows researchers to pursue the importance of particular proteins without the requirement of having purified samples. For this approach to be effective, mycobacteria must be able to transport ONs to their cytoplasm, and if this is not the case, the agents must be otherwise delivered. In this report, we characterize the ability of phosphorothioate (PS) and phosphorodiester (PD) ONs to interact with both Mycobacterium smegmatis and Mycobacterium tuberculosis. In addition, the use of delivery enhancer compounds, ethambutol and **PAMAM** dendrimer, was evaluated on the ON-mycobacteria interaction. ON interaction was demonstrated to be concentration-dependent, suggesting a possibly active component of the ***oligonucleotide*** and bacteria interaction. ON interaction could be increased by the coincubation of the bacteria with the delivery adjuvants. Treatment with ethambutol or dendrimers (fourth generation) was demonstrated to

increase ON interaction with both species of mycobacteria although not to the same extent. The results of these preliminary experiments indicate that through use of the proper delivery adjuvant, ON interactions with mycobacteria can be increased. These findings may have implications for probing future antimycobacterial therapeutic targets.

CONTROLLED TERM: Medical Descriptors:
*mycobacterium
nucleic acid transport
cytoplasm
drug delivery system
nonhuman
controlled study
article
priority journal
Drug Descriptors:
*oligodeoxynucleotide
phosphorothioic acid
ester
ethambutol
dendrimer
antimycobacterial agent
CAS REGISTRY NO.: (phosphorothioic acid) 10101-88-9, 13598-51-1, 15181-41-6; (ethambutol) 10054-05-4, 1070-11-7, 3577-94-4, 74-55-5

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ACCESSION NUMBER: 97176859 EMBASE
DOCUMENT NUMBER: 1997176859
TITLE: Characterization of complexes of **oligonucleotides** with polyamidoamine starburst dendrimers and effects on intracellular delivery.
AUTHOR: DeLong R.; Stephenson K.; Loftus T.; Fisher M.; Alahari S.; Nolting A.; Juliano R.L.
CORPORATE SOURCE: R. DeLong, Department of Pharmacology, School of Medicine, University of North Carolina, Chapel Hill, NC 27599, United States
SOURCE: Journal of Pharmaceutical Sciences, (1997) Vol. 86, No. 6, pp. 762-764.
Refs: 10
ISSN: 0022-3549 CODEN: JPMSAE
COUNTRY: United States
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 030 Pharmacology
037 Drug Literature Index
LANGUAGE: English
SUMMARY LANGUAGE: English
ENTRY DATE: Entered STN: 970702
Last Updated on STN: 970702
ABSTRACT: This study evaluates polyamidoamine **PAMAM** 'starburst' dendrimers (generation 3, M(r) 6909) as a potential delivery vehicle for ***oligonucleotides.*** Complexes between dendrimer and phosphorothioate ***oligonucleotides*** were observed by agarose gel electrophoresis and were positive, negative, or neutral in charge depending on stoichiometry. Complexes were stable in 50% serum to variations in pH (3, 5, and 10) and ionic strength (0-500 mM). Ultrafiltration and gel filtration characterization indicated that the dendrimer:**oligonucleotide** complexes were primarily <100 kD, although some larger complexes were formed at **oligonucleotide** excess. Use of dendrimers resulted in a 50-fold enhancement in cell uptake of ***oligonucleotide*** as determined by flow cytometry, and enhanced cytosolic and nuclear availability, as shown by confocal microscopy. These data support the further evaluation of dendrimers for **oligonucleotide** delivery in

cell culture and in vivo.

CONTROLLED TERM: Medical Descriptors:
*complex formation
agar gel electrophoresis
analytic method
article
cell migration
dna binding
drug bioavailability
drug delivery system
genetic transfection
ionic strength
nonhuman
ultrafiltration
Drug Descriptors:
*amine: PR, pharmaceutics
***oligonucleotide: PR, pharmaceutics**

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on STN DUPLICATE 12

ACCESSION NUMBER: 96179911 EMBASE
DOCUMENT NUMBER: 1996179911
TITLE: Regulation of in vitro gene expression using **antisense oligonucleotides** or **antisense** expression plasmids transfected using starburst **PAMAM** dendrimers.
AUTHOR: Bielinska A.; Kukowska-Latallo J.F.; Johnson J.; Tomalia D.A.; Baker Jr. J.R.
CORPORATE SOURCE: Department of Internal Medicine, 1150 West Medical Center Drive,Ann Arbor, MI 48109-0666, United States
SOURCE: Nucleic Acids Research, (1996) Vol. 24, No. 11, pp. 2176-2182.
ISSN: 0305-1048 CODEN: NARHAD
COUNTRY: United Kingdom
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 022 Human Genetics
LANGUAGE: English
SUMMARY LANGUAGE: English
ENTRY DATE: Entered STN: 960708
Last Updated on STN: 960708

ABSTRACT: Starburst polyamidoamine (**PAMAM**) dendrimers are a new type of synthetic polymer characterized by a branched spherical shape and a high density surface charge. We have investigated the ability of these dendrimers to function as an effective delivery system for **antisense** ***oligonucleotides*** and '**antisense** expression plasmids' for the targeted modulation of gene expression. Dendrimers bind to various forms of nucleic acids on the basis of electrostatic interactions, and the ability of DNA-dendrimer complexes to transfer **oligonucleotides** and plasmid DNA to mediate **antisense** inhibition was assessed in an in vitro cell culture system. Cell lines that permanently express luciferase gene were developed using dendrimer mediated transfection. Transfections of ***antisense*** **oligonucleotides** or **antisense** cDNA plasmids into these cell lines using dendrimers resulted in a specific and dose dependent inhibition of luciferase expression. This inhibition caused .apprx. 25-50% reduction of baseline luciferase activity. Binding of the phosphodiester **oligonucleotides** to dendrimers also extended their intracellular survival. While dendrimers were not cytotoxic at the concentrations effective for DNA transfer, some non-specific suppression of luciferase expression was observed. Our results indicate that Starburst dendrimers can be effective carriers for the introduction of regulatory nucleic acids and facilitate the suppression of the specific gene expression.

CONTROLLED TERM: Medical Descriptors:
*gene expression regulation
*plasmid
animal cell
article
expression vector
mouse
nonhuman
priority journal
rat
genetic transfection
Drug Descriptors:
***antisense oligonucleotide**
*dendrimer
complementary dna

L16 ANSWER 39 OF 41 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 1996:308348 BIOSIS
DOCUMENT NUMBER: PREV199699030704
TITLE: Modulation of gene expression by **antisense oligonucleotides** and expression plasmids transfected with Starburst-TM **PAMAM** dendrimers.
AUTHOR(S): Bielinska, Anna; Kukowska-Latallo, Jolanta F.; Johnson, Jennifer; Tomalia, Donald A.; Baker, James R., Jr.
CORPORATE SOURCE: Univ. Mich., Ann Arbor, MI 48109, USA
SOURCE: FASEB Journal, (1996) Vol. 10, No. 6, pp. A1152.
Meeting Info.: Joint Meeting of the American Society for Biochemistry and Molecular Biology, the American Society for Investigative Pathology and the American Association of Immunologists. New Orleans, Louisiana, USA. June 2-6, 1996.
CODEN: FAJOEC. ISSN: 0892-6638.
DOCUMENT TYPE: Conference; (Meeting)
Conference; Abstract; (Meeting Abstract)
LANGUAGE: English
ENTRY DATE: Entered STN: 2 Jul 1996
Last Updated on STN: 2 Jul 1996
CONCEPT CODE: General biology - Symposia, transactions and proceedings 00520
Genetics - General 03502
Biochemistry studies - Nucleic acids, purines and pyrimidines 10062
Replication, transcription, translation 10300
Metabolism - Nucleic acids, purines and pyrimidines 13014
INDEX TERMS: Major Concepts
Biochemistry and Molecular Biophysics; Genetics; Metabolism; Molecular Genetics (Biochemistry and Molecular Biophysics)
INDEX TERMS: Miscellaneous Descriptors
ANTISENSE OLIGONUCLEOTIDES; BIOCHEMISTRY AND MOLECULAR BIOPHYSICS/MOLECULAR GENETICS; DNA TRANSFER METHOD; EXPRESSION PLASMIDS; GENE EXPRESSION MODULATION; GENETIC ENGINEERING; MEETING ABSTRACT; METHODS AND TECHNIQUES; **OLIGONUCLEOTIDE** DELIVERY SYSTEM; REGULATORY NUCLEIC ACID INTRODUCTION; STARBURST **PAMAM** DENDRIMERS; STARBURST POLYAMIDOAMINE DENDRIMERS; SYNTHETIC POLYMER

L16 ANSWER 40 OF 41 SCISEARCH COPYRIGHT (c) 2005 The Thomson Corporation on STN

ACCESSION NUMBER: 1996:384885 SCISEARCH
THE GENUINE ARTICLE: UK861
TITLE: Modulation of gene expression by **antisense** oligonulcleotides and expression plasmids transfected with starburst(TM) **PAMAM** dendrimers
AUTHOR: Bielinska A (Reprint); KukowskaLatallo J F; Johnson J; Tomalia D A; Baker J R
CORPORATE SOURCE: UNIV MICHIGAN, ANN ARBOR, MI 48109; MICHIGAN MOLEC INST, MIDLAND, MI 48640
COUNTRY OF AUTHOR: USA
SOURCE: FASEB JOURNAL, (30 APR 1996) Vol. 10, No. 6, pp. 884-884. ISSN: 0892-6638.
PUBLISHER: FEDERATION AMER SOC EXP BIOL, 9650 ROCKVILLE PIKE, BETHESDA, MD 20814-3998.
DOCUMENT TYPE: Conference; Journal
FILE SEGMENT: LIFE
LANGUAGE: English
REFERENCE COUNT: 0
ENTRY DATE: Entered STN: 1996
Last Updated on STN: 1996
CATEGORY: BIOLOGY; BIOCHEMISTRY & MOLECULAR BIOLOGY

L16 ANSWER 41 OF 41 EMBASE COPYRIGHT 2005 ELSEVIER INC. ALL RIGHTS RESERVED. on STN
ACCESSION NUMBER: 97028056 EMBASE
DOCUMENT NUMBER: 1997028056
TITLE: Dendrimer delivery of **oligonucleotides**.
AUTHOR: Poxon S.W.; Mitchell P.M.; Liang E.; Hughes J.A.
CORPORATE SOURCE: Dr. J.A. Hughes, Department of Pharmaceutics, University of Florida, P.O. Box 100494, Gainesville, FL 32610, United States. hughes@cop.health.ufl.edu
SOURCE: Drug Delivery: Journal of Delivery and Targeting of Therapeutic Agents, (1996) Vol. 3, No. 4, pp. 255-261.
Refs: 31
ISSN: 1071-7544 CODEN: DDELEB
COUNTRY: United States
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 027 Biophysics, Bioengineering and Medical Instrumentation
029 Clinical Biochemistry
030 Pharmacology
037 Drug Literature Index
039 Pharmacy
LANGUAGE: English
SUMMARY LANGUAGE: English
ENTRY DATE: Entered STN: 970224
Last Updated on STN: 970224
ABSTRACT: Factors limiting the pharmacological effectiveness of ***antisense*** **oligonucleotides** include serum stability and the fact that these agents are inefficiently transported to their sites of action in the cytoplasm and nucleus. Polyamidoamine (**PAMAM**) dendrimers are nonlinear polycationic cascade polymers composed of interconnected ethylenediamine molecules that are able to bind **oligonucleotides** electrostatically. This new complex potentially reduces metabolic degradation of phosphodiester **oligonucleotides** in the serum and in the lysosome. Dendrimers also have the potential to increase **oligonucleotide** cellular uptake, thus augmenting their pharmacological effectiveness. We studied various dendrimer generations and their ability to interact with phosphodiester **oligonucleotides**. Alterations in pH and in ionic strength were studied for their effects on the dendrimer-***oligonucleotide*** complex. A fluorescent-labeled **oligonucleotide** was utilized to study these interactions through a fluorescence anisotropy

method. **Oligonucleotides** complexed to dendrimers were shown to have increased metabolic stability compared with free **oligonucleotides**. Using tissue culture models, fluorescent-labeled **oligonucleotides** complexed to dendrimers were studied for their transport properties. Flow cytometry was used to monitor cell-associated fluorescence of ***oligonucleotides*** and dendrimer systems. The electrostatic oligodeoxynucleotide (ODN)-dendrimer interaction was found to be sensitive to pH and to ionic strength, with the maximal interaction occurring at low pH and ionic strength. Using fluorescent-labeled ODN, we demonstrated that the ODN-DEN complex accumulated to a greater extent than free ***oligonucleotides.*** In summary, dendrimers have the potential to increase the effectiveness of **oligonucleotides** by forming an electrostatic complex that is conducive to increasing metabolic stability and cellular accumulation. In this report we describe the interactions between phosphodiester ODNs and dendrimers with regard to their electrostatic interactions and their cellular uptake.

CONTROLLED TERM: Medical Descriptors:
*complex formation
animal cell
anisotropy
article
cell strain 3t3
cho cell
controlled study
drug degradation
drug delivery system
drug metabolism
drug stability
drug uptake
electricity
fluorescence
ionic strength
lysosome
mouse
nonhuman
ph
priority journal
serum
tissue culture
Drug Descriptors:
*dendrimer: PR, pharmaceutics
***oligonucleotide: PR, pharmaceutics**
***oligonucleotide: PK, pharmacokinetics**
antisense oligonucleotide: PK, pharmacokinetics
antisense oligonucleotide: PR, pharmaceutics
fluorescein isothiocyanate
fluorescent dye
oligodeoxynucleotide: PR, pharmaceutics
oligodeoxynucleotide: PK, pharmacokinetics
phosphodiester oligonucleotide: PK, pharmacokinetics
phosphodiester oligonucleotide: PR, pharmaceutics
poly(amido amine): PR, pharmaceutics
polycation: PR, pharmaceutics
polymer: PR, pharmaceutics
unclassified drug

CAS REGISTRY NO.: (fluorescein isothiocyanate) 25168-13-2, 27072-45-3, 3326-32-7

COMPANY NAME: Aldrich (United States); Polyscience (United States)